



**FACTORS AFFECTING THE RETENTION AND
RECRUITMENT OF MEDICAL LABORATORY SPECIALISTS
IN SOUTH AFRICA:**

**A Case Study of Anatomical Pathologists and Virologists in
KwaZulu-Natal**

by

Nadeem Cassim

206506256

March 2012

Submitted in fulfilment of the requirements for the degree of

Master of Social Science

Industrial Organisational and Labour Studies

University of KwaZulu-Natal

South Africa

DECLARATION

Submitted in fulfilment of the requirements for the degree of Master of Social Science, in the Graduate Programme in Industrial Organisational and Labour Studies, University of KwaZulu-Natal, Howard College, South Africa.

I declare that this dissertation is my own unaided work. All citations, references and borrowed ideas have been duly acknowledged. I confirm that an external editor was used and that my Supervisor was informed of the identity and details of my editor. It is being submitted for the degree of Master of Social Science in Industrial, Organisational and Labour Studies in the Faculty of Humanities, Development and Social Sciences, University of KwaZulu-Natal, South Africa. None of the present work has been submitted previously for any degree or examination in any other University.

NADEEM CASSIM

Student name & surname



Signature

12/10/2011

Date

GEOFF WATERS

Editor name & surname

DR. SHAUN RUGGUNAN

Supervisor name & surname

ACKNOWLEDGEMENTS

It is of great pleasure to thank the many people that have made this thesis possible. It is difficult to overstate my gratitude and appreciation to my Masters supervisor, Dr. Shaun Ruggunan. With his motivational personality, enthusiasm, and inspiration he has made this thesis possible. Throughout the writing of this thesis, he has offered sound advice, encouragement, a great deal of ideas and constant support. This thesis would have not been possible without him.

I would also like to thank the many other personalities who have contributed to this study. Firstly, I wish to thank the librarians of the Malherbe Library at the University of KwaZulu-Natal (Howards College) for their support and services. I would also like to thank the administration staff of the Industrial, Organisational and Labour Studies department for their great assistance.

Lastly, but most importantly, I would like to thank my parents, Mahommed Rafiq Cassim and Yasmin Cassim, my uncle, Akthar Shaik, and my fiancé, Lutfiya Butler for their motivation and support throughout this thesis. These are individuals that have been there from the conception to execution of this study. I wish to extend my appreciation to them.

ABSTRACT

The aim of this study is to assess the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. South Africa experiences a significant shortage of medical laboratory specialists. The shortage has many negative implications on the quality and sustainability of the country's healthcare services. However, whilst medical laboratory specialists play an integral role in the country's healthcare system, there has been no research conducted on the labour market for these specialists and the reasons that facilitate the shortage. Through a qualitative case study of anatomical pathologists and virologists in KwaZulu-Natal, this study overcomes this gap by assessing the factors that negatively affect the retention and recruitment of these specialists. The objectives of this study are: to examine the national and international labour markets for South African medical laboratory specialists; to determine the consequences that the shortage has on South Africa's healthcare system; to assess whether social factors play a larger role than economic factors do in the retention and recruitment of South African medical laboratory specialists; to investigate the efficacy of non-work related factors in the retention and recruitment of these specialists; and to explain the labour market for these specialists in relation to the human relations, human capital and job embeddedness theories. Findings suggest that social factors play a larger role in the retention and recruitment of South African medical laboratory specialists. Additionally, the factors affecting the retention and recruitment of these specialists comprise of factors found within the work settings, as well as factors that are found outside the work settings of these specialists (i.e. work related and non-work related factors). Considering these factors allows for this study to make a few recommendations towards the successful retention and recruitment of medical laboratory specialists in South Africa. This in turn would contribute to the overall quality, efficiency and sustainability of the country's healthcare services.

Keywords:

Labour market; virologists; anatomical pathologists; medical graduates; retention; recruitment; human capital; job embeddedness.

LIST OF ABBREVIATIONS

FIFA	Football International Federation Association
GLM	Global Labour Market
HIV/AIDS	Human Immune Deficiency Virus and Acquired Immune Deficiency Syndrome
HPCSA	Health Professionals Council of South Africa
IMG	International Medical Graduate
IOM	International Organization for Migration
MLS	Medical Laboratory Specialists
NHLS	National Health Laboratory Service
STD	Sexually Transmitted Disease
STEM	Scientific, Technical, Engineering, or Management workers
UK	The United Kingdom
US	The United States

TABLE OF CONTENTS

DECLARATION	ii
ACKNOWLEDGEMENTS	iii
ABSTRACT	iv
LIST OF ABBREVIATIONS	v
TABLE OF CONTENTS	vi
LIST OF FIGURES	viii
LIST OF TABLES	ix
CHAPTER ONE: INTRODUCTION	1
1.1 Introduction	1
1.2 Background and Problem Statement	2
1.3 Research Objectives	6
1.4 Central Theoretical Arguments	8
1.5 Research Methodology	10
1.6 Summary of Chapters	11
CHAPTER 2: THE LABOUR MARKET FOR MEDICAL LABORATORY SPECIALISTS	14
2.1 The Global Labour Market for Professionals	16
2.1.1 Developed vs. developing nations	17
2.1.2 Factors Affecting Migration	20
2.1.3 Importance of Skill	21
2.1.4 Conclusion	24
2.2. The Global Labour Market for Healthcare Professionals.....	25
2.2.1.The Global Demand for Healthcare Professionals	26
2.2.2 Migration Reasons of Healthcare Professionals	30
2.2.3 Migration Policies	32
2.2.4 Migration between Specialties.....	35
2.2.5 Conclusion	36
2.3 The Global Labour Market for South African Healthcare Professionals and Medical Laboratory Specialists	37
2.3.1 Destination Countries	39
2.3.2 Shortage of Healthcare Professionals: Factors	44
2.3.3 South Africa: A Destination Country	50
2.3.4. South African Medical Laboratory Specialists.....	51
2.4 Conclusion	58
CHAPTER 3: THE SHORTAGE OF MEDICAL LABORATORY SPECIALISTS: CONSEQUENCES AND THEORETICAL FRAMEWORK	59
3.1 The Consequences of the Shortage of Medical Laboratory Specialists on South Africa’s Healthcare System.....	60
3.1.1 Shortage of South African Healthcare Professionals: Consequences	60
3.1.2 Shortage of South African Medical Laboratory Specialists: Consequences	66
3.2 The Retention and Recruitment of South African Medical Laboratory Specialists	68
3.2.1 Substitution Policies	70

3.2.2 Retention and Recruitment Policies	71
3.2.3 Policies limited success:	78
3.2.4 Conclusion	79
3.3 Human Relations Theory, Human Capital Theory, and Job Embeddedness.....	81
3.3.1 Human Relations Theory	84
3.3.2 Human Capital Theory	84
3.3.3 Job Embeddedness.....	88
3.4 Conclusion	92
CHAPTER 4:METHODS.....	94
4.1 Philosophy of Research	94
4.2 The Appropriateness of a Qualitative Study.....	99
4.3 Research Design: Case Study	101
4.4 Sampling	103
4.5 Data Collection	107
4.6 Research Questions	111
4.7 Validity: Triangulation	112
4.8 Data Analysis.....	114
4.9 Limitations of Project:	119
4.10 Ethical Considerations.....	123
4.11 Conclusion	126
CHAPTER 5: FACTORS AFFECTING THE RETENTION AND RECRUITMENT OF SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS	127
5.1 The Shortage of Medical Laboratory Specialists and its Consequences	127
5.1.1 Shortage of Medical Laboratory Specialists.....	128
5.1.1.1 Shortage: Anatomical Pathologists.....	129
5.1.1.2 Shortage: Virologists	131
5.1.2 Consequences	132
5.1.2.1 Increased Workload.....	132
5.1.2.2 Effect on laboratory services	133
5.1.2.3 Turn Around Time.....	134
5.1.2.4 Inequalities in Access to Healthcare.....	137
5.1.2.5 Ageing Laboratory Workforce	139
5.2 Factors Affecting the Retention and Recruitment of South African Medical Laboratory Specialists	143
5.2.1 Economic Factors	144
5.2.1.1 Salaries	144
5.2.2 Social and Political Factors	148
5.2.2.1 Exposure to Medical Laboratory Disciplines	149
5.2.2.2 Recognition.....	155
5.2.2.3 Crime	156
5.2.2.4 “Children’s future”: Education and Employability	158
5.2.2.5 Compulsory Service	159
5.2.2.6 Career Enhancement.....	161
5.2.2.7 International Recognition of Skill	165
5.2.2.8 Working Conditions	171
5.2.2.9 Race	174
5.2.2.10 Age	178

5.2.2.11 Employment Capacity	180
5.2.2.12 Service Delivery	182
5.3 Conclusion.....	183
CHAPTER SIX: THEORISING THE LABOUR MARKET FOR SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS	186
6.1 Human Relations Theory.....	186
6.2 Human Capital Theory	191
6.3 Job Embeddedness.....	195
6.4 Conclusion.....	200
CHAPTER SEVEN: CONCLUSION.....	202
7.1 Contributions	205
7.1.1 Empirical Contribution.....	205
7.1.2 Theoretical Contribution	205
7.1.3 Methodological Contribution	206
7.1.4 Contribution to Discipline	206
7.1.5 Practical Contribution.....	201
7.2 Recommendations	211
7.2.1 Awareness of Laboratory Disciplines	212
7.2.2 Recognition of Medical Laboratory Specialists	213
7.2.3. Career Opportunities.....	213
7.2.4 Eradication of Compulsory Service.....	215
REFERENCES	216
APPENDIX	224

LIST OF FIGURES

Figure 2.1: The process to becoming a medical laboratory specialist.....	14
Figure 2.2: Representing the integration of the 3 global labour markets (GLM).....	15
Figure 2.3: Top ten countries with the largest number of international migrants	19
Figure 2.4: Illustrating movement of professionals.....	22
Figure 2.5: Illustrating the accelerated flow of workers between 1970 and 1990.....	26
Figure 2.6: Share of a country's citizens with a university degree living in another country.	27
Figure 2.7: Number of South African doctors that have migrated to receiving or developed countries.....	41
Figure 2.8: Number of South African physicians practising in the United States.....	42
Figure 2.9: Rise in Anatomical Pathologists in South Africa between 2002 and 2006	57
Figure 3.1: Factors affecting the retention and recruitment of medical laboratory specialists	92
Figure 4.2: Three types of non-probability sampling	103
Figure 4.3: Three types of interviews available to researchers	108
Figure 4.5: Data triangulation.....	113
Figure 4.6: Six phase process to thematic analysis	115
Figure 4.7: Anatomical Pathologists and Virologists by Province.....	123

Figure 6.1: Illustrating the On-the Job and Off-the Job factors affecting the retention and recruitment of South African medical laboratory specialists	197
--	-----

LIST OF TABLES

Table 2.1: Movement of international migrants	18
Table 2.2: Decline in US graduates between 1960 and 2006:	22
Table 2.3: Shortage of Doctors and Specialists in KwaZulu-Natal.....	41
Table 2.4: International wage comparisons (Doctors).....	46
Table 4.1: Characteristics of quantitative, mixed, and qualitative research	95
Table 4.2: Anatomical Pathology and Virology Statistics (KwaZulu-Natal).....	105
Table 4.3: Participants interviewed in the study.....	10707

CHAPTER ONE

INTRODUCTION

1.1 INTRODUCTION

South Africa's healthcare system is undergoing a human resource crisis that hampers the accuracy and quality of the country's healthcare. The crisis is attributed to the shortage and loss of skilled medical personnel, particularly medical laboratory specialists (Hagopian; Thompson; Fordyce; Johnson & Hart, 2004). Medical laboratory specialists make a profound contribution to the national healthcare of South Africa, however, the global migration of these specialists and the country's failure to attract new doctors and graduates into medical laboratory specialties, contribute to a healthcare imbalance. Whilst these problems have been recorded, the sociological analysis into the labour market for these specialists and an understanding of the causes behind the shortage of these specialists is absent or negligible in South African literature. This thesis aims to overcome this gap by examining the factors that influence the retention and recruitment of these specialists. By factors, I am referring to the influences and causes behind the global migration and the failure to attract new medical graduates into medical laboratory specialties. An assessment of these factors would allow for an understanding of the reasons behind the shortage of medical laboratory specialists in South Africa, and explanations as to why the country fails to retain its specialists, and fails to recruit new medical graduates into laboratory disciplines. This will be achieved through the examination of the national as well as the international labour market for medical laboratory specialists. Specifically, this thesis will focus on virologists and anatomical pathologists. This study therefore is a case study of anatomical pathologists and virologists in KwaZulu-Natal.

Virologists specialize in the field of microbiology, but specifically focus on the effects that viruses have on humans. This includes the study of viruses: structures; evolutions; categorization; disease outcomes; isolation techniques; and reproduction. Their work focuses around the study of viruses, and diseases caused by viral infections on a molecular level. Virologists perform their duties in laboratories, in which accuracy and attention to detail is emphasized. (See: Lamb, 2011; www.unixl.com).

Anatomical pathologists on the other hand, focus on the tissue diagnoses of diseases. They examine tissues from patients through biopsies and autopsies. Anatomical pathologists are required to possess a broad understanding of the pathological as well as the clinical aspects of diseases. In addition to this, contemporary day pathology also requires anatomical pathologists to perform cytologies, which is the examination of specimens of separated cells. Most of the duties performed by anatomical pathologists involve an eye diagnosis of human tissue. Through eye diagnosis, these specialists are required to obtain results on the occurrence; stages; symptoms; and treatment of diseases (See: Mahul & Amin, 2011; www.rcpa.edu.au).

Concerning the training process, it takes an average of twelve to fourteen years to qualify as a medical laboratory specialist (e.g. anatomical pathologist or virologist). The first six years of the training process is spent acquiring an undergraduate medical degree. In the seventh and eight years, these graduates are required to serve their internship. The immediate two years after internship are spent in community service. Lastly, graduates undergo specialists' training in medical laboratory fields for four years once they have completed their community service.

1.2 BACKGROUND AND PROBLEM STATEMENT

Medical laboratory specialists play an integral role in ensuring accurate and appropriate healthcare in the national healthcare of a country, due to their influence in clinical decision making and medical diagnosis. The absence of their diagnosis and expertise often results in misdiagnosis and patient deaths, because clinical bodies such as medical doctors and practitioners for example, rely on the expertise of medical laboratory specialists in their decision (i.e. patient) making processes (Bates, I. & Maitland, 2006). Considering the prevalence of infectious diseases in South Africa such as: HIV/AIDS; malaria; tuberculosis; and cancer; the role that medical laboratory specialists play in the country's national healthcare becomes even more integral because they are considered a vital resource required in the prevention and treatment of infectious diseases (Petti; Polage; Quinn; Ronald & Sande, 2006). However, the loss of these specialists from the South African labour market has contributed to a major health imbalance by posing threats to the quality and accuracy of the national healthcare system.

South Africa currently experiences a shortage of medical laboratory specialists. Literature regarding this problem suggests that the country experiences this crisis due to the poor

remuneration of these specialists (ipsnews.net). However, considering that these specialists are highly skilled workers that are in fact highly paid (for example, anatomical pathologists being the highest paid medical profession in South Africa), I strongly believe that the shortage of medical laboratory specialists is actually a result of factors that go beyond financial remuneration. By saying this, I am implying that social conditions and factors play a larger role in the retention and recruitment of South African medical laboratory specialists than economic factors do. Global literature supports this argument by demonstrating that the labour market for laboratory specialists has become increasingly global. Medical laboratory specialists migrate to countries in response to push and pull factors (Allsop; Bourgeault; Evetts; Bianic; Jones & Wrede, 2009). However, these push and pull factors go beyond financial needs. Based on the premise of the human capital theory, specialists migrate in response to their employment needs such as: recognition; training and educational needs; infrastructure; technology; linguistic competence (i.e. English); workload, career advancement, etc. (See: Beckering & Brunner, 2003; Lippi, G. & Plebani, 2010; & Hagopian; Thompson; Fordyce; Johnson & Hart, 2004). This signifies that the loss of medical laboratory specialists from South Africa should be aggregated to the poor social conditions found within South Africa.

In addition to global migration, the loss of medical laboratory specialists from the South African labour market is also a result of the migration of these specialists to other professions. Along with migrating to other countries, these specialists are also involved in the movement between professions. For example, medical laboratory specialists are abandoning the laboratory field, and are partaking in the sales and marketing of laboratory equipment (Interviews 2011, Dr Rampersad). Besides this indicating a retention problem, it should also be noted as a recruitment problem. Medical personnel are required to undertake community service on the completion of their studies in order to be accredited a licence to practice in South Africa. However, many of these young specialists are migrating to other countries on the completion of their studies before partaking in community service. Additionally, many young specialists still remain within South Africa, but migrate out of the medical laboratory field to other professions, before enrolling into community service (ipsnews.net). Other than demonstrating the government's loss of investment in training and developing these specialists, this crisis also clearly emphasizes the country's failure to recruit young specialists into the medical laboratory field and preventing them from migrating both out of South Africa, and out of the medical laboratory field

(www.universityworldnews.com). This thesis will exemplify this by showing that South African medical laboratory specialists, particularly virologists migrate out of the medical laboratory field when they migrate out of South Africa.

South Africa has access to prominent and competent tertiary institutions that produce the finest medical laboratory specialists, however, there still exists a dilemma concerning the failure to attract new doctors and graduates into medical laboratory opportunities within the country's healthcare system (Hagopian, et al, 2004). Once again, whilst the reasons behind this crisis are absent or neglected in South African literature, tracing the movement of South African medical laboratory specialists to other countries from global literature demonstrates the existence of this dilemma. For example, a study conducted in the United States of America depicts South Africa as one of the chief senders of laboratory specialists to the United States' medical labour market. Statistics show 79.4% of the medical laboratory specialists practicing in the United States are produced by only ten medical schools (Hagopian, et al, 2004). These medical schools are situated globally. Of the ten, three of these medical schools are situated in South Africa (Hagopian, et al, 2004). This may not provide primary information on the shortage of medical laboratory specialists in South Africa, but clearly contends the country's failure to attract new graduates and doctors to the national labour market for medical laboratory specialists.

Compounding the problem concerning the shortage of medical laboratory specialists in South Africa is the rapid ageing of the current cohort of specialists. Most countries cite the ageing laboratory workforce as an issue of great concern. In this regard, South Africa's ageing medical laboratory specialists is reflective of first world patterns. In South Africa, this issue is magnified through the country's inability to adequately retain and recruit existing and young medical laboratory specialists (Beckerling & Brunner, 2003). This failure, along with the rapid ageing of the country's current specialists who are approaching retirement age, will more greatly affect the shortage of these specialists in South Africa in three key ways: by expanding and increasing the demand for these specialists; increasing the shortage of these specialists; and resulting in a massive loss of experience and expertise in the country's healthcare system (Beckerling & Brunner, 2003). This will be made clearer in chapter five of this study which highlights the rapid ageing of medical laboratory specialists as a chief consequence of the global migration and failure to attract candidates in laboratory specialities.

Considering that laboratory services is one of South Africa's most neglected field in terms of research, it becomes crucially important to investigate the reasons or factors behind the shortage of medical laboratory specialists. Whilst the limited research in this area has shown the shortage to be a result of the global migration; and the country's failure to attract new doctors and graduates to medical laboratory opportunities, there still remains a gap concerning what causes these ramifications. Due to the remuneration of these specialists being relatively high in South Africa, I strongly believe that the shortage of these specialists in the country is actually an outcome of social conditions found within the employment and external to the employment of medical laboratory specialists. As a result, I hypothesize that social factors have a greater impact than economic factors in South Africa's failure to retain and recruit medical laboratory specialists. In addition, I believe that these factors extend beyond the employment settings of these individuals. Therefore, I also hypothesize that the factors affecting the retention and recruitment of these specialists are composed of factors found within the employment settings of these individuals, as well as factors found in the external environment (i.e. outside the workplace settings). I believe that through an understanding of these factors, the country would be able to successfully retain and recruit these specialists in its national labour market.

Moreover, through assessing the factors affecting the retention and recruitment of medical laboratory specialists, this study also aims to make a contribution towards the overall quality and accuracy of healthcare in South Africa. International literature emphasizes the role that these specialists play in ensuring accurate and appropriate healthcare, however, little or no research has been pursued regarding methods of recruiting and retaining these specialists in South Africa (Bates & Maitland, 2006). Through the analysis of the current factors negatively affecting the retention and recruitment of these specialists, this study would assist South Africa in proposing solutions and developing strategies to retain and recruit these specialists. This in turn would lead to the eradication of the imbalances that the country faces in its healthcare systems, by ensuring the provision of healthcare that is effective, accurate and appropriate (due to the availability of these specialists' expertise).

1.3 RESEARCH OBJECTIVES

The primary objective of this study is to assess the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. This broad objective will be fulfilled through the achievement of the following secondary objectives. The first two objectives of this study are:

1. *To investigate the labour market for medical laboratory specialists nationally and globally.*
2. *To investigate the labour market for virologists and anatomical pathologists in South Africa.*

For this study to sufficiently assess the factors affecting the retention and recruitment of medical laboratory specialists in South Africa, it needs to understand both the national and international labour market for these specialists. These research objectives enable this study to understand the demand for medical laboratory specialists globally, and whether this demand differentiates locally. In addition, by allowing this study to assess the magnitude of the migration of South African medical laboratory specialists, these research objectives provide evidence surrounding the failures of South Africa's labour market in retaining and recruiting these specialists. Assessing the international labour market for these specialists will provide a foundation of the push and pull factors surrounding their reasons for migration, which will ultimately demonstrate the gap between the national and international labour market for these specialists. The findings from this objective will assist me in making recommendations to retain and recruit medical laboratory specialists in South Africa.

The third objective of this study is:

3. *To examine the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare system.*

To understand the role that these specialists play in healthcare, it becomes crucial for this study to assess the implications that South Africa's healthcare sector experiences due to the shortage of these specialists. These consequences provide a rationale for this study. By showing that the shortage of medical laboratory specialists has a series of negative implications on healthcare in South Africa, it becomes important to understand the factors that affect the retention and recruitment of medical laboratory specialists in South Africa (i.e. factors facilitating the

shortage). This also provides reason for the South African healthcare sector to develop strategies to successfully recruit and retain these specialists.

The fourth and fifth objectives of this study are:

4. *To assess the economic and social factors affecting the retention and recruitment of South African anatomical pathologists and virologists.*
5. *To examine whether there are non-work related factors that affect the retention and recruitment of these specialists.*

This study aims to assess the factors affecting the retention and recruitment of South African medical laboratory specialists. However, these factors need to be categorised in order to understand the labour market for these specialists. Therefore, this study aims to derive at the economic and the social factors. This would allow for an understanding of whether the shortage of these specialists is a product of social as opposed to economic factors, or vice versa. Other than assessing whether only economic, or social factors affect the retention and recruitment of medical laboratory specialists, this study also aims to assess whether the factors affecting the retention of these specialists are factors that are non-work related. By non-work related, I am referring to factors that are found outside the employment settings of medical laboratory specialists in South Africa. These factors are found within the external environment that these specialists labour and reside in.

The final objective of this study is:

6. *To investigate the extent to which organizational theories such as human relations, human capital, and job embeddedness theories explain the nature of the labour market for these specialists.*

Considering that virologists and anatomical pathologists are professions that are highly paid in South Africa (with anatomical pathologists being the highest paid medical profession in South Africa), the loss of these specialists from the South African labour market needs to be associated with factors that go beyond monetary rewards (Interviews 2011, Dr Rampersad). Hence, utilizing the human capital, human relations, and job embeddedness theories to understand the labour market for these specialists, allow for an understanding and explanation of social factors other

than monetary rewards (i.e. wages), as well as the non-work related factors that push these specialists to leave the South African labour market, and factors that fail to attract them (i.e. recruit) to medical laboratory specialties in South Africa.

1.4 CENTRAL THEORETICAL ARGUMENTS

Theories about what factors of employment attract and motivate employees signify that employees are not only attracted and motivated through financial rewards, such as high wages for example. Due to the high remuneration (i.e. salary) of medical laboratory specialists in South Africa (i.e. average monthly salary ranging between R50 000 to R100 000), especially anatomical pathologists, it would be relevant for this study to utilize theories that elaborate on factors other than financial factors that attract employees into occupations. As a result, this thesis will be founded upon three principal theories. The first of these is The Human Relations theory, which argues that employees are not only motivated through financial rewards, but also through a broad range of social factors. These factors include: recognition, appreciation; a sense of belonging; pride in one's work; etc (Rose, 2005). Through the development of employee interpersonal skills; group co-operative skills; and employee relationships, this approach influences positive changes in an organization's productivity as well as economic, social and psychological satisfaction of employees. It is believed that an organization prospers when it assists employees in prospering (Rose, 2005). A core research study of Human Relations (i.e. The Hawthorne Effect) illustrated that when employees were recognized, observed and included in the study, they felt a sense of value and belonging in the organization. As a result, the productivity of the organization increased significantly (Rose, 2005). The shortage of medical laboratory specialists in South Africa is not a dilemma necessarily related to unsuitable or low salaries. I strongly believe that the shortage of these specialists is the outcome of factors that go beyond a financial basis. Hence, through an understanding of the Human Relations theory as a theoretical lens, this study would be able to assess whether social factors are the cause of the shortage of these specialists in South Africa.

The Human Capital theory also suggests the importance of human resource strategies that exceed financial motivation. The theory stresses that a formal education is integral in increasing a population's production capacity. It emphasizes the need for large investments in human capital development, whereby the education that workers receive would increase their productivity,

efficiency, and motivation, which would result in an economic return of investment for an organization or society (Babalola, 2003). It is believed that it is the human element, and not capital or material resources that determines the success of economic and social development (Babalola, 2003). International literature contends that medical laboratory specialists migrate to countries of better opportunities to fulfil their educational and training needs. Whilst these specialists are highly skilled, they still require training and development programmes that update their scientific knowledge (Plebani & Lippi, 2010). Hence, the human capital theory serves a dual purpose in this thesis. Firstly, it serves as an explanation for the possible loss of skilled medical personnel from South Africa, by demonstrating the migration of these specialists in response to their educational requirements. Secondly, the human capital theory also emphasizes the need for South Africa to retain and recruit these specialists through human capital development. Laboratory specialists, as emphasized, are integral to the quality of healthcare in South Africa; hence updating their scientific knowledge would also contribute to an increase in the overall quality (i.e. productivity) of healthcare in South Africa.

The third theory used in this thesis to explain the factors affecting the retention and recruitment of medical laboratory specialists in South Africa is Job Embeddedness. The theory elaborates on the various reasons that motivate individuals to remain in their job. These reasons are explanations for the extent that one is embedded in his or her job. The theory, like the human relations and human capital theory, suggests that workers are motivated to remain in their jobs for reasons other than just economic reasons (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). These reasons include social and political reasons. By saying this, the theory asserts that financial incentives (i.e. salary or wage increases) have a limited scope in motivating workers to remain embedded in their jobs. It is through the influence of other, social and political factors (i.e. career enhancement for example), that workers are motivated to remain in their jobs (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). Hence, we note a similarity between the human relation and job embeddedness theories. Both theories assert that workers are motivated in their employment through social and political factors, rather than economic factors.

However, job embeddedness goes a step further. The theory does not only suggest that social factors play a greater role than economic factors do. It also suggests that the extent that a worker is embedded in his job is due to a combination of on-the job as well as off-the job factors. Hence,

workers are motivated to remain in their jobs due to the conditions found within their employment, in addition to the conditions of the environments that they labour and reside in (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). This theory will be used to explain why the failure of the retention and recruitment of medical laboratory specialists in South Africa is a product of a combination of on-the job and off-the job factors. Chapter three of this study discusses these theories in detail.

1.5 RESEARCH METHODOLOGY

This section provides a brief overview of the research methodology used in this study. A case study *research design* was adopted in this study because case studies allow for an in-depth, primarily qualitative and context based analysis of my research questions. This research design has also been adopted because this study is a case study of anatomical pathologists and virologists in KwaZulu-Natal. Concerning *sampling*, the official¹ population consists of 245 anatomical pathologists and 28 virologists in South Africa (See: Interviews 2011, Dr Rampersad; HPSCA, 2011). This study has engaged in purposive sampling. The subjects of this study all conformed to the following two criteria, firstly that they were either a medical laboratory specialists, or secondly that they were related to the training and human resource management of these specialists. My sample consisted of eleven anatomical pathologists (48% of the actual KwaZulu-Natal population) and two virologists (67% of the actual KwaZulu-Natal population). Additionally, two virology registrars; a micro-biologist; an international migration specialist; and a former South African anatomical pathologist (currently in the United States) were interviewed.

The primary method of *data collection* used was semi-structured interviews. In addition to these methods I have collected a range of secondary national and global labour market statistics to reflect the employment and hiring trends of these specialists. Lastly, a thematic analysis was used as a method of data analysis. It focused on themes and patterns that were identifiable from both surveys and interviews conducted (Braun and Clarke, 2006). In order for the large amount of data to be broken down into major themes and categories that represent the factors affecting the retention and recruitment of medical laboratory specialists, a thematic analysis was the most suitable data analysis technique.

¹ Chapter four elaborates on the difference between the official and actual statistics of these specialists

1.6 SUMMARY OF CHAPTERS

Chapter Two contains a review of previous and existing research, and literature surrounding the global labour market for medical laboratory specialists. The aim of this chapter is to identify the gaps in the literature for medical laboratory specialists in South Africa, as well as to make a contribution to this literature. Due to the negligible research on this topic, this chapter is broken down into three parts: The global labour market for professionals; the global labour market for healthcare professionals, and the global labour market for South African healthcare professionals.

The aim of this chapter is to answer the first four research questions of this study:

- 1. What is the labour market for medical laboratory specialists nationally and globally?*
- 2. What is the labour market for virologists and anatomical pathologists in South Africa?*
- 3. What are the economic and social factors affecting the retention and recruitment of South African anatomical pathologists and virologists?*
- 4. Are there non-work related factors that affect the retention and recruitment of these specialists?*

Chapter Three is a continuation of the review of literature on South African medical laboratory specialists. Whilst chapter two looks at the global labour market for medical laboratory specialists, chapter three assesses the consequences that the shortage of these specialists has on South Africa's healthcare system. In addition, this chapter also assesses the effectiveness of a few of the current retention strategies that South Africa has implemented for healthcare professionals. These strategies will be shown to be ineffective in retaining and recruiting healthcare professionals (i.e. including medical laboratory specialists) in South Africa. Additionally, chapter three outlines the theoretical framework adopted by this study to explain the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. These theories are: The Human Relations theory, The Human Capital Theory, and The Job Embeddedness theory. Therefore, chapter three answers the following research objectives:

- 1. What consequences does the shortage of medical laboratory specialists have on South Africa's healthcare system?*
- 2. To what extent do organizational theories such as human relations and human capital theory explain the nature of the labour market for these specialists?*

Chapter Four includes a detailed description of the methods adopted by this study for the purposes of: The research design, sampling, data collection, and data analysis. Additionally, this chapter also aims to outline why the methods chosen to conduct this study were most conducive, via outlining how they allow this study to gather, analyse and discuss data optimally. Whilst there are three predominant methods of inquiry that could have been adopted, this study utilises a qualitative method of inquiry. Chapter four seeks to outline the unique advantages that this method has in conducting this study.

Chapter Five of this study is a discussion of the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. In this chapter, data gathered from interviews with participants will be presented and discussed. However, before discussing the factors, the chapter assesses the shortage of medical laboratory specialists (particularly anatomical pathologists and virologists) in South Africa, and the consequences that this shortage has on the country's healthcare system. The factors discussed in this chapter will be categorised into two major themes: Economic Factors, and Social and Political Factors. Whilst the first four objectives have been addressed in chapters two and three using literature, this chapter uses responses from participants to answer these objectives.

Chapter Six is a continuation of the discussion of the factors affecting the retention and recruitment of medical laboratory specialists. However, this chapter discusses these factors in relation to the human relations, human capital and job embeddedness theories. Put differently, these theories will be used to explain these factors, in which an explanation as to why social factors play a larger role in the retention and recruitment of medical laboratory specialists, as well as why factors found outside the employment settings of these specialists affect their retention and recruitment. By doing so, this chapter answers the fourth and fifth objectives of this study.

Chapter Seven is the final chapter of this study which concludes this thesis. This chapter will summarize the arguments made and results obtained in this dissertation, and will also elaborate on the position of my hypothesis by assessing the key arguments made in this study. Additionally, the chapter includes recommendations and solutions to the problems faced by South Africa concerning the retention and recruitment of medical laboratory specialists. Chapter seven

also emphasizes the various contributions that this study has made towards research and healthcare in South Africa.

CHAPTER 2

THE LABOUR MARKET FOR MEDICAL LABORATORY SPECIALISTS

The purpose of this chapter is to review the existing literature, identify the gaps in the literature, and contribute to the current literature on the global labour market for medical laboratory specialists. Medical laboratory specialists refer to medical doctors that are involved in the laboratory investigations of patients. The term refers to a medical doctor that has furthered his/her training by specialising in a medical laboratory field, such as: anatomical pathology, chemical pathology, virology, or haematology, for example. The work of these specialists is primarily diagnostic tasks restricted to the laboratory, with minimal or limited clinical interaction (i.e. interaction with patients). The first step to becoming a medical laboratory specialist is to obtain an undergraduate medical degree. Once a medical degree has been obtained, graduates are required to serve two years in internship followed by another year or two years (depending on the curricula) in community service. On the completion of community service, doctors then further their training by specialising in one of the above mentioned fields. The following figure (Figure 2.1) illustrates the process to becoming a medical laboratory specialist:

Figure 2.1: The process to becoming a medical laboratory specialist



By assessing the global labour market for medical laboratory specialists, this chapter in particular addresses the following research questions of this study:

1. *What is the labour market for medical laboratory specialists nationally and globally?*
2. *What is the labour market for virologists and anatomical pathologists in South Africa?*
3. *What are the economic and social factors affecting the retention and recruitment of South African anatomical pathologists and virologists?*
4. *Are there non-work related factors that affect the retention and recruitment of these specialists?*

The above mentioned research questions will be addressed through an assessment of three integrated global labour markets: the *global labour market for professionals*; the *global labour market for healthcare professionals*; and the *global labour market for South African healthcare professionals and medical laboratory specialists*.

Figure 2.2: Representing the integration of the 3 global labour markets (GLM)



The purpose of defining the three integrated global labour markets (i.e. for professionals, healthcare professionals, South African healthcare professionals and medical laboratory specialists), is to show that these labour markets are composed of similar characteristics. Figure 2.2 illustrates the interconnectedness of these markets by showing that the global labour market for South African healthcare professionals is part of the global labour market for healthcare professionals, which is part of the global labour market for professionals. Therefore, this chapter indicates that the characteristics found amongst these three labour markets are similar. These characteristics include: the migration of professionals being a movement from less developed to more developed countries, the factors that determine the migration, similar destination and source countries, and the global raiding of skilled personnel. These commonalities provide for an indication of the global labour market for medical laboratory specialists. Given the limited literature on medical laboratory specialities in South Africa, the commonalities found amongst the three global labour markets will be used to obtain an indication of the factors that affect the retention and recruitment of medical laboratory specialists. This section indicates these

commonalities by demonstrating how these markets operate under similar principles. Chapter two begins with an examination of the global labour market for professionals.

2.1 THE GLOBAL LABOUR MARKET FOR PROFESSIONALS

A labour market refers to a market in which workers compete for jobs, and employers compete for workers. A „global“ labour market refers to the competition between and for workers, taking place on a global scale by exceeding countries national boundaries (Rüdiger, 2008). This definition however, is a general definition of a global labour market, and does not sufficiently define the global labour market for professionals. This is due to the two differences that arise when defining the global labour market for professionals (Rüdiger, 2008). Firstly, the global labour market for professionals does not merely refer to the competition between „workers“ that occur on a global scale, it refers to the competition between „skilled“ workers that occur on a global scale. Examples of skilled workers include: engineers, doctors, information technology specialists, human resource practitioners, and accountants (Rüdiger, 2008). Secondly, in the global labour market for professionals, employers and organisations compete for workers more than workers compete amongst themselves for jobs. This section assesses the global labour market for professionals.

Skilled workers are demanded by organizations across the globe due to their expertise (Rüdiger, 2008). This section introduces the global labour market for professionals by outlining the general characteristics of a global labour market, which then moves onto the notion of skill (i.e. the importance of professionals in the global labour market). The purpose of assessing the global labour market for professionals is because this thesis deals with medical laboratory specialists that are highly skilled personnel. Therefore, understanding the mechanics and the characteristics of the global labour market for professionals provide for a better understanding of the global labour market for medical laboratory specialists.

The global labour market for professionals is an outcome of globalization. Globalization refers to the increased flow of goods, capital and services across borders. Through modern electronic equipment and transport innovations, world trade and financial markets spread across the globe and become more integrated (Rodrik, 2011). Put simply, globalization refers to the manner in which organizations, lifestyles, and ideas exceed national boundaries and spread across the globe.

Organizations began to establish themselves in order to partake in the global market from the 1970's. Prior to the 1970's, organizations and countries believed that the only key to economic success was to protect their industries from global competition (Rodrik, 2011). As a result, there was little or negligible trade of goods between countries, and the flow of capital between countries was restricted. However, two decades later, countries experienced a change through an emphasis on opening up their borders to allow mainly developing countries to partake and compete in a global market. This process is called „globalization“ (Khoo, McDonald, & Hugo, 2007).

The above mentioned definition may be a commonly agreed upon definition of globalization, but fails to emphasize the impact that globalization as a process has on the creation of a global labour market. By saying this, I am implying that globalization entails more than just the flow of goods between countries and nations. The process also includes the flow of workers, and human capital (i.e. skill) from country to country. The global labour market can be understood as a mirror image of the global market for goods and services. Just as goods and services move from one country to the other, so too do workers (Felbermayr, Prat, & Schmerer, 2008). The difference however, is that there is a flow of workers rather than goods and services across borders. However, just as goods and services are under constant foreign competition in a global market for goods and services, so too are workers in competition in the global labour market (Felbermayr, Prat, & Schmerer, 2008). The revolution in technology, predominantly within communication and transport sectors have facilitated the global labour force by lowering the cost for people to move across borders, and has facilitated the migration of workers to countries and regions with better job and higher wage opportunities. By migrants, I am referring to individuals that reside in countries other than their countries of birth for more than twelve months (SOPEMI, 2011).

2.1.1 DEVELOPED VS. DEVELOPING NATIONS

The global population of international migrants has doubled since the 1980's. The number according to recent surveys, stands at 214 million, which is the largest number of migrants ever to be recorded (International Organization for Migration, 2010). According to the United Nations Human Development Report (2010), international migrants constitute 3.1% of the world's population (Globalization 101, 2010). Concerning migrant workers, the global labour force comprised of three million workers in 2001 and has grown at a steady rate of forty million

workers a year. Thirty-eight million of the forty million global labour force growth occurs in developing countries, and the remaining two million occurs in developed countries. Because developing countries produce more workers in the global labour force (thirty-eight million per annum), the mobility of workers in the global labour force is often directed towards wealthier and more developed nations (Martin, 2005). Martin (2005) shows that within the global labour market, the majority of the workers participating in international migration move from lower wage labour markets to higher wage labour markets. To Martin (2005), this explains why the most developed countries around the globe may only have 16% of the world's employees, yet hold over 60% of the world's migrants. For example, in the year 2000, 110,291,047 (63%) of the world's migrants resided in developed countries compared to 64,642,797 (37%) migrants that resided in less developed regions (Martin, 2005).

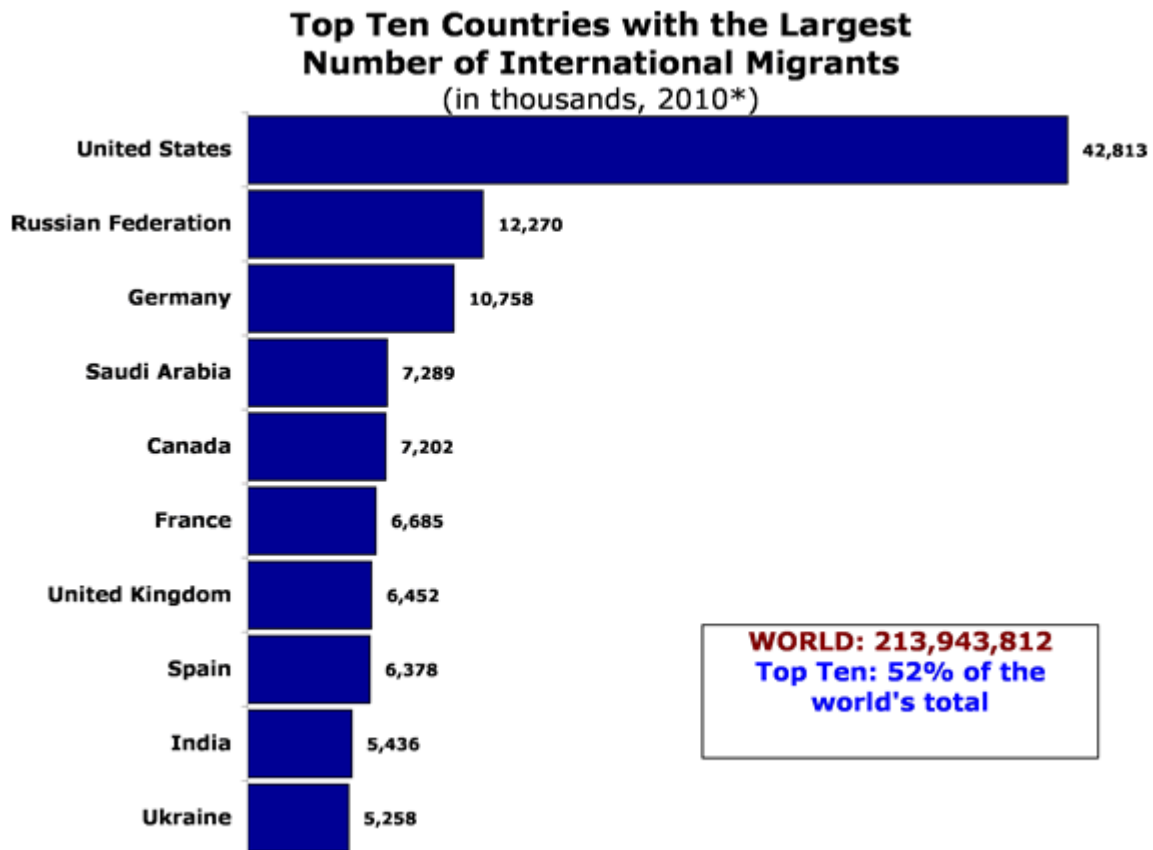
Whilst Martin (2005) provided international migration statistics from the year 2000, the 2010 Human Development Report indicates that the movement of migrants from developing to developed countries is a phenomenon that is even more prevalent in contemporary society. In 2010 (i.e. ten years down the line), the migration of people to developed countries constituted 97% of international migration, whereas the migration from developed to developing countries was only 3% (Globalization 101, 2010). Between 2000 and 2010, there has been a 34% increase in the movement of international migrants from developing to developed countries, and a 34% decrease in the movement from developed to developing countries. The table below illustrates this.

Table 2.1: Movement of international migrants

	2000 (% of international migrants)	2010 (% of international migrants)
Developing to Developed Countries	63%	97%
Developed to Developing Countries	37%	3%

The most noted „developed“ or dominant receiving nations in Europe and North America: the United States; United Kingdom; Australia; New Zealand Canada; as well as Canada; Russia; France; and Spain (SOPEMI, 2011). The graph below (Figure 2.3) illustrates that eight of the top ten receiving countries are in fact, developed countries.

Figure 2.3: Top ten countries with the largest number of international migrants



Source: <http://www.migrationinformation.org/datahub/charts/6.1.shtml>

Martin (2005) failed to assess the mobility of different skilled personnel, his research however, emphasizes a fundamental point: Most of the migration occurring in the global labour force includes the movement of workers from less developed nations to more developed nations, which explains the common notion of globalization being an attempt for wealthier and better developed countries to strengthen their competitive advantage in the global economy (SOPEMI, 2011) These facts may exclude any mention of medical laboratory specialists (which is the crux of this thesis), but successfully creates a foundation explaining the possible factors behind the movement of these skilled personnel from South Africa's labour market. The section on the global labour market for South African healthcare professionals illustrates that the country's characteristic of being a developing nation is the main reason for the loss of healthcare professionals to better developed countries.

The labour market for professional services has become increasingly global. There has never been more mobility or such a great demand for global talent before. Countries and nations compete with each other for global talent, by hiring workers and employing expertise from abroad. They recognize that this global talent would serve as a key or prime economic resource, which would also assist in a country's skill shortage (Rogerson, 2007). The flow of human capital (i.e. skilled employees) is a factor that can be generalized to all countries, but we can not ignore that this flow is accompanied by inequalities and imbalances. Not all countries experience the same benefits from the global labour market. Within the global labour market, countries are classified as either recipient or donor countries (Bermeo & Leblang, 2010). Recipient countries are defined as those that receive immigrating skilled workers and tend to be better industrialized countries. These countries benefit through the migration of workers, and experience „increments“ which stabilize and maintain their supply of labour. Increments include: Availability of new graduates that are trained locally or abroad; skilled workers migrating out of their field and transferring their skills into the field that is required (e.g. pathology); and the immigration of skilled personnel from abroad (Bermeo & Leblang, 2010). Donor countries, on the other hand, refer to those countries from which skilled labourers migrate, and tend to be less-developed and less-industrialized countries. Instead of experiencing increments or benefits, donor countries experience more losses in their labour markets through: retirements; emigration of skilled staff; transfer of skilled staff to other occupations; and deaths (See: Martineau, Decker & Bundred, 2004, Bermeo & Leblang, 2010).

2.1.2 FACTORS AFFECTING MIGRATION

The general notion regarding international migration is that workers move from less developed to more developed nations, however, there are different factors surrounding workers' reasons to migrate. The obvious and most commonly noted reason is for economic benefits (such as: job opportunities; higher wages; fringe benefits, and career advancement). However, there are also reasons that go beyond financial reasons that hold equivalent importance (International Organization for Migration, 2010). Taking this into account, it is important to categorize the reasons that prompt people to migrate according to economic and non-economic factors. Economic factors include: job opportunities; career advancement; increased wages; and financial fringe benefits. Non-economic reasons that encourage people to migrate to other countries are:

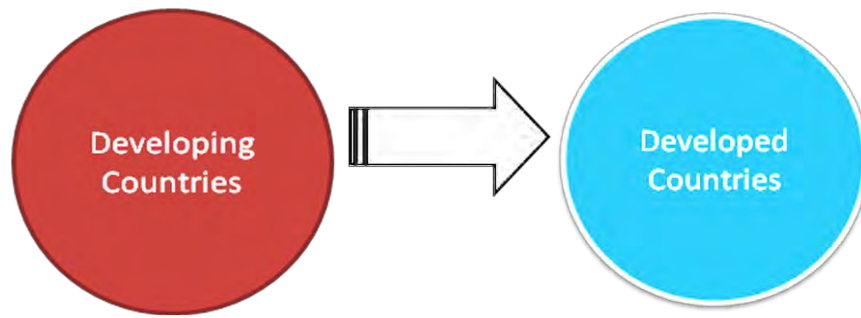
safety and security; housing; family unification; recognition; war in home country; displacement; religion; communication; and transport (International Organization for Migration, 2010).

2.1.3 IMPORTANCE OF SKILL

When assessing the global labour market, one also needs to understand the role that skill plays in it. Castells (1996) clearly outlines this by illustrating that globalization entails changes in the economy which include: economic shocks; changing consumer preferences; and competition. Additionally he states that there has been a dramatic shift from manufacturing to service economies (Castells, 1996). This does not indicate a complete eradication of manufacturing jobs, but implies a strong move towards service orientated economies with a dramatic decline in manufacturing sectors. Due to this, we now live in a knowledge economy where workers are required to possess greater skills. In this knowledge economy, organizations require what is known as „knowledge workers,“ which refers to an increase in the skill content of labour (Castells, 1996). Employees need to possess qualifications that exceed a school qualification; they need to gain tertiary qualifications so that they are able to apply their skills in production processes, allowing organizations to be innovative and efficient. An organization that lacks the ability to do this lacks the ability to be competitive (Castells, 1996).

Due to the shift towards a knowledge economy, countries have opened up their doors to willingly accept higher skilled workers from abroad to reside and labour in their country. Examples of such skills are: Information technology specialists; engineers; doctors; accountants; that have qualified abroad. The extraction of high skilled workers is often a process that occurs in developing countries, in which more developed nations recruit and attract high-skilled personnel from less developed nations (Globalization 101, 2009). There may be exceptions to this factor, however, there is a general agreement that high-skilled workers move from less developed to more developed countries due to availability of better opportunities, not just economic, but also social and political benefits.

Figure 2.4: Illustrating movement of professionals



The result of this mobility gave rise to a negative process called the „brain drain“ in emigration countries, which will be discussed in part two of this literature review, in which the consequences of the brain drain on source countries will be assessed (Bermeo & Leblang, 2010).

Freeman (2008) indicated that when assessing the notion of skill in the global labour market, it would be wrong to assume that it is only the rich and developed countries that have the skilled workforce that is necessary to produce innovative and high-end products. This may have been a notion of the past, but can no longer hold relevance because countries around the world, including developing countries, have all adopted a role in investing in higher and tertiary education, and produce a substantial number of university graduates (Freeman, 2008). For example, in the 1960's, over 30% of the worlds professionals graduated in the United States, but in 2006 only 12% of graduates were from the United States. Additionally the PhD levels in the United States have declined from 50% to 18% in the same period (Freeman, 2008). Freeman (2008) illustrates that the reason behind this is due to the establishment of higher education facilities such as universities and other tertiary institutions in developing countries that are producing a large number of graduates (Freeman, 2008).

Table 2.2: Decline in US graduates between 1960 and 2006:

	1960	2006
World's Graduates from US	30	12
PhD Graduates in US	50	18

However, along with presenting these findings, he also states that he agrees that the migration pattern of skilled employees is predominantly from developing to developed countries. Multi-national firms owned by developed countries are raiding higher skilled workers from around the world through the „global sourcing“ of these workers. Global sourcing basically refers to the recruitment of high skilled employees from abroad (Freeman, 2008).

More over, Chiswick (2011) conducted a study on the impact of high-skilled emigration on the global labour market. His study examines policies that have been adopted by developed countries to attract what he calls “STEM” workers, which refers to workers that have high *Scientific, Technical, Engineering, or Management* skills. STEM workers (according to his findings) are more likely to be recruited abroad than lower skilled workers, because they boost the productivity or production capacity of developed nations due to their ability to apply their skills in innovative production processes, and to increase production output through designing and establishing cutting edge technology (Chiswick, 2011). In addition, developed nations create policies to attract the immigration of STEM workers not only for their skill, but also because their skill attracts foreign investments into the country that they migrate to. He believes that skilled workers attract foreign investment because investors see skill as a requirement for organizational success (Chiswick, 2011). Countries such as: Canada, Australia, New Zealand, United States, and many European countries have designed and implemented policies specifically to attract foreign skill into their national labour markets. These policies may be the reason why these countries alone are home to two-thirds of the worlds“ migrants (Chiswick, 2011).

Papoutsakis (2010) additionally emphasizes the role that skills play in a globalizing world by outlining the pressures of globalization on economies across the globe. He elaborates under globalization, organizations need to adapt to more flexible work arrangements in order to overcome the pressures of foreign competition due to a shift from manufacturing intensive to more service orientated economies. This also implies a shift from the employment of less skilled workers to higher skilled workers (Papoutsakis, 2010). He goes on by emphasizing that the organizations that successfully sustain themselves and perform optimally in a global economy, are those organizations that focus their energy on attracting as well as retaining their best employees. By best employees, he refers to the need for organizations to utilize skill and human capital to be innovative and successful. Through the use of skill, organizations are able to survive

the pressures of globalization which are: foreign competition; economic shocks; and changes in technological advancements (Papoutsakis, 2010). Therefore, Papoutsakis (2010) believes that it is crucial to ensure that organizations satisfy their high-skilled employees to prevent the loss of talent, because it is more expensive to replace skilled staff than it is to retain them (Papoutsakis, 2010). These writers provide reasons behind the extraction of high-skilled personnel from developing countries to more developed countries by illustrating the role that skills play in the global economy. Whilst their research may possess a gap by not including primary mention of medical laboratory specialists or healthcare workers in general, they do provide reasons as to why medical laboratory specialists are demanded globally. Due to the global demand for skill, as they have adequately outlined, we note that organizations and economies are relying on human capital (i.e. workers skill) to sustain themselves. Considering that medical laboratory specialists are high-skilled healthcare workers, the arguments concerning the global raiding of skills may provide reason as to why these specialists are in demand globally.

2.1.4 CONCLUSION

The literature outlined in this section regarding the global labour market for professionals demonstrates that whilst there is global and national literature on various high skilled occupations, there is limited to non-existent literature on medical laboratory specialists. Research into this specific occupation is the gap in the literature that this thesis aims to overcome, by providing a sociological analysis of the labour market for medical laboratory specialists. The intention of this section was to assess the global labour market to understand the background and general characteristics of the global labour market for professionals. Understanding the mechanics of the global labour market and the global labour force such as: the flow of skilled workers from developing to developed nations; recipient as opposed to donor countries; the shift towards a service economy implying a need for skill; the „global raiding“ of skilled personnel; policies that facilitate migration to developed countries, was ultimately presented in order to understand the forthcoming arguments behind the shortage of medical laboratory specialists in South Africa. Gaining recognition of these factors allows for an understanding as to why South Africa experiences a shortage of medical laboratory specialists, due to its position of a developing country which makes it a donor country of skilled labour to more developed countries, according to the laws of the global labour market.

2.2. THE GLOBAL LABOUR MARKET FOR HEALTHCARE PROFESSIONALS

In 2008, the world experienced an estimated shortage of 4.6 million healthcare workers. Developing countries in particular, were victimised by more developed countries who have extracted their healthcare professionals through migration policies (WHO, 2010). The migration of healthcare personnel does not deviate from the general patterns of migration. It is a phenomenon that closely follows or relates to the general trends of global migration (i.e. those trends that we have assessed above concerning general characteristics of the global labour market) (Clark, Stewart & Clark, 2006). In this section, it will be noted that the characteristics of the global labour market for healthcare professionals concur with the characteristics of the general global labour market for skilled personnel. By saying this, it is implied that similar flow of skills (from developing to developed nations); similar reasons behind the migration of skilled workers; and similar consequences on destination as opposed to source countries, will be found. These results will facilitate this study in deriving at the factors that cause the shortage of medical laboratory specialists in South Africa.

The shortage of healthcare professionals is attributed to the transformations in the world of work and occupations. Prior to the 1990's, the mobility of workers was somewhat unrestricted implying that all workers, skilled or unskilled, possessed the freedom of movement (Elliott & Lindley, 2006). However, post-1990, the ability for employees around the world to change their jobs, location, and occupation is associated to the skill that they possess, which is known as the demand for occupational skill specificity. This was due to the rise of the knowledge economy which increased the demand for skilled workers globally (Elliott & Lindley, 2006). The demand for unskilled workers diminished globally, and the demand for skilled workers increased. As a result, receiving countries of migrants are restricting the entry of unskilled workers and are giving first preference to skilled workers. Therefore, it has become easier for skilled workers to migrate, and harder for unskilled workers (Elliott & Lindley, 2006). Pogue (2007) emphasises this by showing that the "Mobility of human resources is inanimately related to the emerging knowledge economy" (Pogue, 2007). The mobility of skill is explained in the following section which outlines the mobility of healthcare professionals.

2.2.1. THE GLOBAL DEMAND FOR HEALTHCARE PROFESSIONALS

The growing demand for healthcare worldwide leads to a global shortage of health care workers, and has facilitated the international mobility of healthcare workers, due to a greater demand for these workers. This gave rise to a global labour market for health care professionals, which allows these professionals to utilize their skills and expertise to enhance their labour market experience through emigration. Erasmus & Hall (2003) showed that this has been a trend occurring from as early as 1970, when the world underwent a process of integration through globalization (Erasmus & Hall, 2003). However, the international mobility trend of health professionals has only reached its full capacity in the 1990's (i.e. an accelerated flow of health care workers across borders), because during the 1990's countries began to experience significant shortages in their healthcare workforces, and turned to the international recruitment and inward migration of health care professionals as a solution to this problem (Erasmus & Hall, 2003).

Figure 2.5: Illustrating the accelerated flow of workers between 1970 and 1990

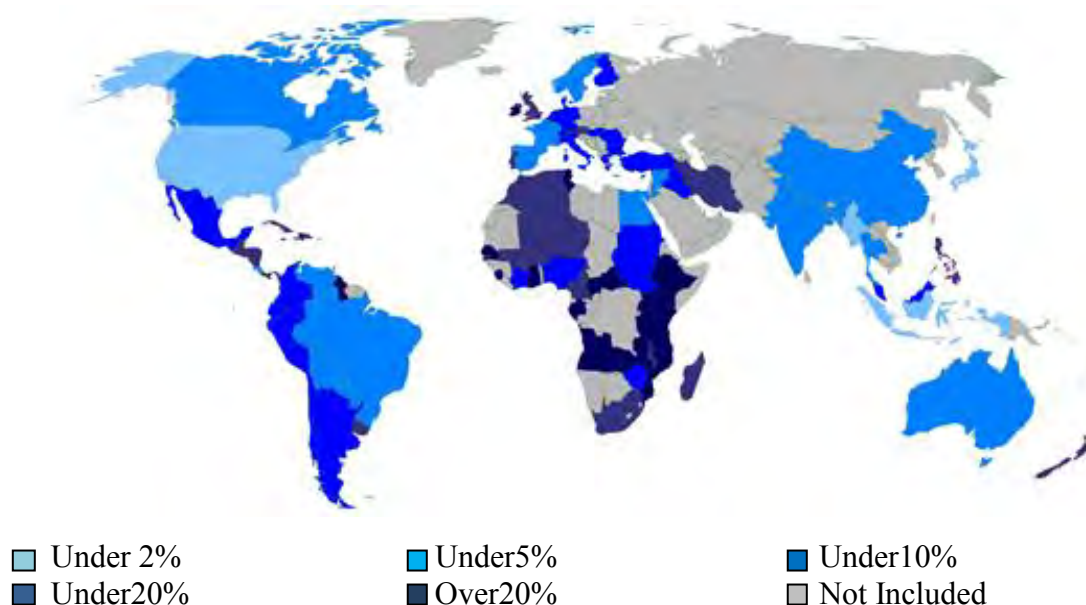


Health-care systems around the globe are in crisis, and there is no country that can claim that their healthcare system is crisis-free. The crisis as stated, involves the failure to meet the ever increasing demand for healthcare which is attributed to the shortage of healthcare workers. The shortages however, are not uniform in developed and developing countries. Developed countries experience a periodic shortage of healthcare staff (particularly physicians; specialists and nurses) which they try to overcome by offering greater incentives in their labour market, and through making their labour market more attractive globally to attract foreign skill (Clark, Stewart & Clark, 2006; Devraj, 2006).

The shortages faced by developed countries are usually due to the demand for healthcare growing faster than their actual ability to supply healthcare. Developing countries in contrast, experience chronic as opposed to periodic shortages of healthcare personnel, particularly skilled healthcare personnel. The shortage experienced in developing countries is due to their failure to provide adequate resources to their healthcare systems, which ultimately prevents their ability to train and retain an adequate supply of healthcare professionals (Clark, Stewart & Clark, 2006; Devraj, 2006). This results in developing countries experiencing „Brain drains“ which is defined as the departure of high-skilled or well-educated professionals from the labour market of one country to another, usually for financial reasons and better living conditions. The term does not only include the international migration of skilled workers, but also includes the movement of these individuals from one economic sector of a country to another, or from one field to another. Hence, the term “brain drain” also includes the loss of skills that occur within a country (Bermeo & Leblang, 2010)

Figure 2.6 illustrates the percentage of countries tertiary educated citizens that reside in other countries. From the diagram below, it is clear that most developing nations experience high degrees of brain drain migration (over 20%). South Africa experiences between 10 and 20% brain drain migration.

Figure 2.6: Share of a country's citizens with a university degree living in another country.



Source: <http://www.oecd.org/dataoecd/1/50/39375505.pdf>

Rogerson (2007) concurs with these views in his study that portrayed healthcare employees as one of the high-skilled professional categories that is greatly affected by globalization. He believes that over the past decade, there has been a process which he calls „global raiding“ of skilled healthcare workers occurring, in which better developed countries are extracting skilled labour from poorer countries (Rogerson, 2007). The labour market for professional services, including medical laboratory specialists, have become increasingly global. There has never been more mobility or such a great demand for global talent before. Countries and nations compete with each other for global talent, by hiring workers and employing expertise from abroad. They recognize that this global talent would serve as a key or prime economic resource, which would also assist in a country's skill shortage (Rogerson, 2007).

The main destination countries for healthcare professionals to migrate to are the same developed countries that workers in general (not just health workers) migrate to: the United Kingdom; The United States; Ireland; Australia; Canada; and Saudi Arabia. The main source countries which high-skilled healthcare personnel migrate from are countries that are still in their developing stages. The predominant source countries are: Philippines; South Africa; India; Pakistan; Nigeria; Zambia; Zimbabwe; Ghana; and Kenya (Clark, Stewart & Clark, 2006). These countries emphasize that the movement of healthcare professionals is also a movement that occurs from developing countries to more developed countries.

Hamilton & Yau (2004) pursued research into the mobility of healthcare professionals by elaborating that this mobility is not a new or recent phenomenon. Whilst the migration of health workers may be a phenomenon that is in its mature stages, Hamilton & Yau (2004) emphasize that a recent change that has occurred in this mobility is the increased migration of higher skilled health workers, and the intensified extraction of high-skilled healthcare workers by developed countries (implying that they see an increased flow of these skilled personnel from developing to developed countries). They state that the mobility has created a global tug-of-war for health workers, by increasing the competition for these workers globally (Hamilton & Yau, 2004). Additionally, due to the emigration of healthcare workers occurring mainly from developing countries, especially higher skilled healthcare workers, the loss of these skills from developing countries weakens a healthcare system that is *already* in its failing stages. The movement according to these authors is not the cause of a failing healthcare system; it is actually a

phenomenon that is a symptom of an already diminishing healthcare system (Hamilton & Yau, 2004).

This simply implies that the failures of healthcare systems in developing countries push skilled healthcare workers to emigrate, and the loss of their skills is not the prime reason behind the failure of healthcare systems in developing countries. It is just a factor that aggravates the failure. They also emphasize that the healthcare brain drain leaves policy makers in developing countries with a complex issue: To ensure that skilled healthcare personnel maintain their human rights and freedom to migrate in search for better employment opportunities, without damaging source countries' healthcare systems and depriving citizens of developing countries of their fundamental human right (access to basic standards of healthcare) (Hamilton & Yau, 2004). Despite the migration of healthcare professionals being a phenomenon occurring from as early as the 1970's, policy makers especially in developing countries still experience difficulties in striking a balance between these two complex issues. They often find themselves responding to the previous issue of allowing migration at the expense of the latter issue (providing basic healthcare to their citizens) (Hamilton & Yau, 2004). Considering South Africa as a developing country, Hamilton & Yau (2004) may provide reasons as to why the country experiences such difficulties in providing and maintaining a well-balanced and effective healthcare system. If the movement of medical laboratory specialists is a symptom of South Africa's already failing healthcare system, then this may explain why the migration of these specialists persist, due to the difficulties for South African policies to address the shortage of these specialists whilst preventing their human rights from being sabotaged.

Stilwell et al. (2004) show that healthcare workers that migrate do not represent a large proportion of the high-skilled workers that migrate from developing countries, yet the consequences of their migration can be the most devastating. They argue that the loss of healthcare professionals from developing countries may not just reduce, but may eradicate the countries' ability to provide effective and equitable healthcare to the population. The migration of skilled health personnel is not a phenomenon that will stop due to advances in the global labour market such as communication, etc. Hence, developing countries need to develop a strategic approach to retain their skilled health staff (Stilwell et al., 2004). Additionally, the loss of healthcare skills through migration has more devastating consequences now than it ever did

before. Reason being is that previously, the rate of return migration was high, implying that healthcare professionals did not emigrate permanently. In addition, when they did return, they brought back skills from abroad which could be very beneficial to their countries of origin. However, recently, as of 1990, the rate of return migration has declined dramatically whilst the rate of emigration has increased substantially. This implies that more of these professionals are leaving their home countries and few are returning, resulting in a permanent loss of their expertise (Stilwell et al., 2004).

2.2.2 MIGRATION REASONS OF HEALTHCARE PROFESSIONALS

Many writers have aggregated the movement of healthcare workers to developed countries to the demand for higher wages as a prime motivator behind the migration of healthcare workers (Menash & Mackintosh, 2005). However, others have shown that wages may make an important contribution in the movement of workers, but is not always the primary reason behind this movement. When healthcare workers search for „greener pastures“ abroad, the primary factors and conditions that they search for are often unrelated to wages. For example, experts show that poor working environments; heavy workloads in source countries; lack of proper supervision and management; limited capacity in organizations; administration issues and a lack of recognition could also serve as prime factors behind the migration of health professionals (Hamilton & Yau, 2004). Clark, Stewart & Clark (2006) speak about this in more detail by relating the migration of healthcare professionals according to push and pull theories of migration. Their study states that the decision to migrate is often a result of interplay between economic, political, legal and social factors. These factors that cause workers to migrate fall into two categories: supply-push factors and demand-pull factors (Clark, Stewart & Clark, 2006). Supply-push factors basically refer to those factors and conditions in the home countries of workers that push workers to emigrate. These are factors in the home country that workers are dissatisfied with, which results in the migration from their home country to a country that they perceive to be better in certain ways. Examples of supply-push factors are: poor compensation/remuneration; poor working conditions; hazardous working conditions (e.g. Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome: HIV/Aids); job dissatisfaction; poor or absent career prospects; social or political instability (crime, war, poverty, etc); inadequate quality of life; and absence of opportunities for children (e.g. good standard of education) (Clark, Stewart & Clark, 2006).

Demand-pull factors on the other hand refer to those factors and conditions in destination countries of migrants that attract them. These factors motivate workers to migrate due to the perception of destination countries being „greener pastures“ compared to their home country. However, when assessing demand-pull factors, it is important to note that these factors are more influential on workers in developing countries than those in developed countries (Clark, Stewart & Clark, 2006). For example, the salaries of nurses in Canada and Australia (i.e. developed countries) are twenty-five times more than Zambia (developing countries), in real terms. This may explain why the migration of skilled work is often a flow from developing to developed countries. Examples of demand-pull factors are: higher compensation; recognition at work; stable working conditions; safe working environments; more career prospects; cultural networks; better training opportunities; workforce shortages; social and political stability; good quality of life; family wealth (i.e. sending back remittances); and a good environment to raise families (e.g. good standard of education) (See: Clark, Stewart & Clark, 2006; Stilwell, Diallo, Zurn, Vujicic, Adams, et al., 2004).

Regardless of the factors that were just outlined, Stilwell et al. (2004) indicate that the decision to migrate remains an individual and personal choice. Therefore, it may be the case that one's decision to migrate may be entirely unrelated to any of the push or pull factors that we have mentioned above. Reasons could include a personal reason which implies that the context and circumstances of migration is likely to change regularly (Stilwell, et al, 2004). Nevertheless these writers still find it important to place the decision to migrate into an overall social, political and economic context to show that wages are not the only determining factor in healthcare professionals' decision to migrate. The importance of aggregating the migration of skilled health workers to factors that go beyond wages has been emphasized by Stilwell et al (2004) whose study showed that the wage differentials are so large between developed and developing countries (i.e. destination and source countries), that reducing the wages in developed countries or increasing the wages in developing countries will not have a great impact in retaining healthcare personnel in source countries. The reason behind this is because the wage gap between these two countries is so large, that even manipulating the value would not allow source countries to match the wages of developed countries (Stilwell et al., 2004). They believe that because of this, from a retention point of view, wages are not the primary factor and the decision to migrate should also be seen to be dependant on other factors such as working conditions and professional

development. Their study concludes that the role of wages in retaining healthcare skilled workers to developed countries is rather small. Instead they believe that non-wage instruments would be more successful in retaining these skills. These include; working conditions, recognition, and the other non-economic demand-pull factors that were outlined (Stilwell et al. 2004). Therefore, due to the small role that wages would play as a motivator in retaining healthcare professionals in developing countries, these countries need to assess non-economic factors behind the loss of their skilled health workforce.

2.2.3 MIGRATION POLICIES

A study conducted by Allsop et al. (2009) showed that the migration of healthcare professionals is not an action that is only dependant upon workers willingness to migrate. Their study assessed the role that state policies play in the mobility of skilled workers. They studied three professional groups in an international context (i.e. engineers; physicians; and psychologists), and their findings conclude that state policies greatly affect the mobility of workers within all of these groups, and most importantly: these policies reflect particular state interest. The movement of skilled workers globally is controlled and restricted according to labour market requirements by three dominant groups in society: the state; private institutions; and professional associations (Allsop, Bourgeault, Evetts, Bianic, et al., 2009).

These groups manipulate the movement of professionals to secure their personal demands. Concerning healthcare professionals (i.e. physicians as their sample population), their study shows that over recent years, the international migration of physicians has increased. Moreover, the study shows that this migration and free flow of skill across borders is influenced through free trade agreements between states, and through a mutual recognition or „global“ recognition of qualifications that allow healthcare professionals to be more mobile and internationally recognized (Allsop, Bourgeault, Evetts, Bianic, et al, 2009). These agreements dominate state interest, and an example of a free trade agreement occurs between Canada and the United States; Australia and New Zealand; and between European economic regions. Canada and the United Kingdom for example, rely on the inward migration of physicians. Hence, as of 2002, these countries have established migration policies that encourage healthcare stakeholders and employers to utilize recruitment agencies to recruit physicians from abroad (Allsop, Bourgeault, Evetts, Bianic, et al, 2009). The example of France also emphasizes the role that policies play in

the mobility of healthcare workers whereby the Ministry of Health developed policies that authorized public healthcare institutions to recruit doctors from abroad to meet their demand in the shortage of doctors. As a result, French public hospitals recruited over 15,000 International Medical Graduates (IMG's) from developing countries (Allsop, Bourgeault, Evetts, Bianic, et al, 2009). In short, state policies such as agreements between two countries encourage or discourage the inward migration of healthcare professionals. States may either use policies to foster economic growth and overcome the shortage of healthcare professionals in their country by encouraging inward migration; or they may sustain and retain their health workers for more equity based reasons such as the ability to serve their population with effective, efficient and fair healthcare (Allsop, Bourgeault, Evetts, Bianic, et al., 2009).

Despite many human rights interventions that aim to prevent developed nations from deepening the inequalities in developing nations by extracting their skilled staff, the mobility of skilled health workers did not change. For example, in 1999, the United Kingdom's Department of Health developed a "Code of Practice for the International Recruitment of Healthcare Professional," which was basically an ethical contract that prevented the United Kingdom from recruiting medical personnel from developing countries unless there was an agreement between the two governments involved (Menash & Mackintosh, 2005). However, within the same period (i.e. 1999) the United Kingdom had drastically increased the registration of many Ghanaian, South African, Kenyan, Malawian, and Zambian doctors and nurses. This indicates the failure of ethical policies in allowing developing countries to sustain their healthcare systems (Menash & Mackintosh, 2005).

The loss of healthcare professionals through international migration has pushed many developing countries to take coercive methods as desperate measures to retain their skilled workforce. An example of such a country is Ghana which had enforced coercive policies on its medical graduates to prevent their departure to other countries. The first of these policies was a compulsory public service scheme known as „bonding“ policies. Many developing country states have introduced this policy that ensured doctors served their communities for a period of time (e.g. for five years). This was a scheme utilized as a mechanism to overcome the shortage of doctors in rural and outskirt areas. New graduates were sent to these areas, and failure to participate in compulsory community service was punished through severe fines (Menash &

Mackintosh, 2005). Whilst the Ghanaian state saw this policy as a method of retaining staff, evidence shows that it had counterproductive effects or outcomes. Many doctors refused to serve in their communities and chose to pay fines instead. The depreciation of Ghana's currency made the fine equivalent to five months wages. Hence, doctors did not find any constraints in paying these fines (Menash & Mackintosh, 2005). In addition, due to the poor policing and monitoring of this policy, many doctors migrated without paying the fine. If we had to analyse this factor, we come to see that what the compulsory public service scheme did was prevent doctors from returning to practice in Ghana. Those that have migrated without paying the fines they owe to the state have refused to return due to legal action against them. The important point to note regarding the Ghanaian example is that coercive methods are not viable methods of retaining skilled staff. If developing countries wish to successfully retain their skilled health labour force, they need to attempt to match those factors that attract these professionals abroad (Menash & Mackintosh, 2005). Coercive methods according to various studies actually sabotage the human rights of healthcare professionals. Instead, incentives that match the factors that pull healthcare workers to developed countries should be used as retention solutions, because these methods will be responding to the perceived needs of these workers (Menash & Mackintosh, 2005).

Martin (2005) regards the emigration of African health personnel as a special case. Due to financially strained healthcare systems in most African countries, the government has to fully utilize whatever resources are available to them. For example, in South Africa, medical graduates are required to serve two years of community service in order to be accredited. Their licences are withheld until the completion of this service. The government utilizes this method as a mechanism to overcome the shortage of doctors in rural and outskirt areas (Martin, 2005). This is done through the allocation of rural and outskirt areas with a lack of facilities and staff to new graduates. Rather than overcoming the health crisis in South Africa (i.e. medical brain drain), the community service approach is actually a fundamental reason behind the emigration of many South African doctors. Briefly put, it is the bad experience gained from community service that prompts new and young doctors to migrate. Research regarding this matter illustrated that 40% of South Africa's 1300 doctors that graduate each year plan on migrating to more developed countries as soon as possible (Martin, 2005). Whilst these statistics provide vital information concerning the shortage of healthcare professionals in South Africa, there has been no research pursued in the country regarding doctors' or other healthcare professionals' intentions to migrate.

The data provided are findings from a study conducted in 2005. The latest statistics on this issue was provided by George, Quinlan & Reardon (2009) who indicate that from 2400 South African medical graduates in 2006 and 2007, over half indicated that they had strong intentions of emigrating (George, Quinlan & Reardon, 2009).

The authors mentioned in this section indicate that the migration of healthcare professionals is not a phenomenon that is a result of one's personnel decision to migrate alone. Rather, they show that the migration of healthcare professionals is also influenced through state policies that determine their mobility. The purpose of this section was to illustrate that the migration or shortage of medical laboratory specialists should also be viewed as an outcome of South African healthcare policies.

2.2.4 MIGRATION BETWEEN SPECIALTIES

The global labour market for healthcare professionals entails a large flow of skilled healthcare workers mainly from developing to developed nations. Whilst international migration as shown is very dominant in the labour market for healthcare professionals, it is not the only type of migration that occurs. Put in a different way, it would be both inappropriate and inadequate to give one the impression that international migration is the only form of migration that occurs in the labour market for healthcare professionals, because migration of healthcare professionals also exists between professions or specialties. This indicates that apart from international migration, healthcare professionals are also largely involved in the migration to other specialties. A longitudinal study by Holden, Edith & Levit (1978) serves as empirical evidence to this by demonstrating the extent to which physicians migrate out of their specialties to other specialties. Their study is considered a classic study that assesses the migration of healthcare professionals between specialties. Whilst it may have been a study conducted in 1978, it still maintains its relevance and remains the only study that examines the movement of healthcare professionals between healthcare specialties to date. The study's population consisted of physicians that have graduated with a medical degree between 1960 and 1968. It was noted that this form of migration has been a process that has been going on from as early as 1960. The results showed a gradual increase in the number of physicians that have migrated to other specialties over a period of eight years. For example, in 1960 8% (54) of physicians changed their specialty. In 1964, the number had increased to 74 (11%) and in 1968 it had increased to 205 (29%) (Holden & Levit, 1978).

The total number of physicians that have changed was 333, which is 16% of the study's population (2,046 physicians). Additionally, the study also noted that physicians (or skilled medical personnel at large), change their profession within the first five years of their career (Holden & Levit, 1978). Whilst this study's limitation is that it does not provide the motive and factors behind the migration of physicians to other specialties, and does not provide a comprehensive list of the specialties that they have migrated to, an important lesson that prevails is that when we assess the shortage or migration of healthcare professionals, we should not only consider the international migration of these workers because their shortage in any particular country or region could be an outcome of the migration of healthcare professionals to other specialties (Holden & Levit, 1978). Therefore, when assessing the shortage of medical laboratory specialists in South Africa, two distinct forms of migration need to be addressed. The first is to assess whether there is evidence of international migration of medical laboratory specialists from South Africa, facilitating the shortage. The second is to assess whether there is evidence of medical laboratory specialists migrating to other specialities, which would also facilitate the shortage.

2.2.5 CONCLUSION

This section has demonstrated that the characteristics of the global labour market for healthcare professionals concur with the characteristics of the global labour market for skilled personnel in general. These findings imply that the global labour market for healthcare professionals is also composed of characteristics such as: the demand for the skill of healthcare workers to overcome skill imbalances in economies; flow of skills from developing to developed nations; common factors behind the migration of skilled workers; importance of non-economic migration reasons; and policies that facilitate migration. The commonalities amongst the global labour market for professionals and the global labour market for healthcare professionals imply that the global labour market for South African healthcare professionals should also be based on similar principles and characteristics. Therefore, this section would also assist this study in deriving at the factors that cause the shortage of medical laboratory specialists in South Africa. The commonalities between the global labour market for professionals and the global labour market for healthcare professionals provide an indication of what these factors are.

2.3 THE GLOBAL LABOUR MARKET FOR SOUTH AFRICAN HEALTHCARE PROFESSIONALS AND MEDICAL LABORATORY SPECIALISTS

Globalization, as noted, is a process that integrates countries and nations. All countries are affected by globalization whether they choose to participate in the global market or not. South Africa is no exception. The global labour market for South African healthcare personnel is an area of research that has been well documented. In this section, we will note that the country is well integrated into the global labour market for healthcare professionals, but on a negative scale. By negative scale, I am implying that South Africa's integration into the global labour market for healthcare professionals resulted in negative implications on the country's healthcare system (e.g. shortage of healthcare professionals). (Lynelley, 2007). These implications will be elaborated on in chapter three of this study. When assessing the global labour market for healthcare professionals, it was said that countries are either classified as donor countries that are regarded as sources for healthcare workers, or recipient countries that are destination countries that receive healthcare workers. Here we will note that South Africa ideally, can be regarded as a donor as well as a recipient country for healthcare professionals due to its unique nature. However, because its donor characteristics outperform its recipient nature, it is globally regarded as being a donor country that is a source of healthcare workers (Lynelley, 2007).

South Africa loses more healthcare professionals each year through international migration. Doctors, dentists, specialists, and other healthcare professionals migrate to countries with better opportunities (i.e. greener pastures) (HSCPA, 2011). As a result, the country's healthcare system is left to cope with the small number of healthcare professionals that remain. Statistics show that the country has 37 333 registered doctors, with 12 238 of these being specialists (HSCPA, 2011). These numbers however, are far from the required number of healthcare professionals that are needed to maintain an equitable and efficient healthcare system (HSCPA, 2011). For the required number of healthcare professionals to be reached, the country needs to train 2400 doctors annually (HSCPA).

The movement of health care professionals from South Africa to better developed countries is described as a „global conveyor belt“ that passes on products (i.e. healthcare professionals) from South Africa to these countries, a one way process (IOL, 2011). The ageing populations of industrialized and better developed countries forces these countries to rely on the recruitment of

medical professionals from less developed countries such as South Africa, as a solution to their human resource crisis (i.e. shortage of health professionals) (George, Quinlan & Reardon, 2009). The chronic shortage of doctors experienced by South Africa is signified through its doctor ratio comparison to other developing countries. The country, whilst being regarded as a developing to developed nation, still experiences poorer doctor to patient ratio's compared to poorer developing countries. South Africa has 0.57 medical doctors per 1000 people, whereas Brazil and Mexico (countries that are regarded as poorer nations) have 1.85 and 1.9 medical doctors to 1000 people, respectively (HSCPA, 2011).

In addition, the statistics available regarding the doctor to patient ratio includes the number of doctors registered in South Africa. However, this is not a true indication of the actual number of doctors practicing in the country because a substantial number of these doctors have migrated to other countries, yet still retain their South African medical licence (Kale, 1995). This was emphasised by a respondent in this study who indicated that whilst statistics may reflect the registered number of doctors and healthcare specialists, this is not necessarily a true indication of the actual number of professionals currently practising. This is because healthcare professionals can retain their South African licence after retiring, and even when practicing abroad (Erasmus & Breier, 2009).

Erasmus & Breier (2009) indicated that it is impossible to accurately quantify the extent of the number of South African healthcare professionals migrating due to under-reporting. The official statistics that are gathered are based on information gained from healthcare professionals leaving or entering the country. However, the completion of forms on the departure of these professionals is not a law that is enforced. Data concerning migration is only captured at a few large South African airports (Erasmus & Breier, 2009). Therefore,, a large number of professionals leave the country without indicating that they do. The result of this is the inability to quantify the number of healthcare professionals that actually migrate from South Africa (Erasmus & Breier, 2009). The statistics captured are merely indications of the international migration of these professionals. A large amount of research studying the shortage of healthcare professionals in South Africa rely on international sources of data that encompass the number of South African healthcare professionals residing and practising in certain international countries (Erasmus & Breier, 2009). Examples of these sources are: American and Canadian Medical Associations,

employment surveys of international countries, population surveys, census data, and international literature. The problem with this however, is that it considers the main destination countries that South African healthcare professionals migrate to, and disregards or neglects smaller and less recognised destination countries (Erasmus & Breier, 2009). Hence, statistics concerning the number of health care professionals practicing in South Africa, and those that have migrated may be underestimated. This implies that the shortage of health care professionals that the country experiences may even be worse than documented.

2.3.1 DESTINATION COUNTRIES

A study conducted by the International Organization for Labour Migration concerning the global placement and mobility of South African healthcare professionals indicated that the top destination countries for South African healthcare professionals are: The United Kingdom; Australia; The United States; Ireland, New Zealand and Canada. The mobility of South African health professionals is often a movement to mainly European and Northern American countries (HSCPA, 2011). These countries have been accused for poaching healthcare professionals, especially doctors from South Africa. Previously the Netherlands was regarded as a major attraction destination to South African doctors. However, post 2001; the recruitment of South African doctors in Netherlands has virtually stopped due to laws that restricted the country's ability to recruit doctors outside the European Union. Hence, through the implementation of this policy, the Netherlands has been removed as a destination country for South African doctors. For example, in 2000 and 2001, around 491 doctors have been recruited from South Africa. However, the restrictive migration policy declined the number of doctors recruited from South Africa to 95 in 2005 (Lynelllyn, 2007).

The United Kingdom and the United States still remain as two key destinations for South African health professionals regardless of any restrictive migration mechanisms put in place. For example, the United Kingdom had applied a "Code of Practice for International Recruitment of Healthcare Personnel," which is legislation that prevents the United Kingdom from recruiting any professionals from developing countries to ensure that they assist in fostering a move towards eradicating the healthcare imbalances experienced there due to the medical brain drain (Lynelllyn, 2007). In 2001, the country reduced its recruitment of doctors from South Africa and turned to countries like the Philippines and India as their source countries. However, not long after, it

disregarded its initiative to create a global balance in healthcare and continued raiding doctors from South Africa. To further elaborate, South African doctors constitute the third largest group of doctors in the United Kingdom (1980 doctors in 2005) (Lynelley, 2007). The United States follows similar recruitment patterns by utilizing South Africa as one of its chief sources of medical labour. In 2007, there were 2006 South African doctors registered and practicing in the United States. Of the main destination countries mentioned, the US and the UK in particular, are still major attractions to South African doctors and International Medical Graduates (IMG's) on a whole due to: high salaries; innovative technologies; research opportunities; and extensive training opportunities (Lynelley, 2007). This emphasises that financial remuneration is not the only international attraction for South African healthcare professionals.

South Africa is ranked as a country that has a moderate to high loss of healthcare personnel due to out migration. Concerning doctors alone, the country has an outflow rate of 1000 doctors per annum, implying that it has lost an average of 1000 doctors annually from 2003 (Lynelley, 2007). A few writers find this quite alarming when they consider that the number of doctors trained in the eight medical schools yearly in South Africa that is determined by the Health's Professionals Council of South Africa is approximately 1200. They believe that this number is inadequate considering that 1000 of these 1200 doctors consider emigrating annually. In addition, they state that the demand for places in medical school increases every year, yet the number of places (i.e. 1200) for doctors in South African medical schools has remained the same since the 1970's (See: Urbach, 2008; Profmed, 2009). Whilst this entails that about 80% of South Africa's doctors migrate, another source states that the country loses 17% of its doctors annually (Makoni, 2009). Another study shows that the country has lost 37% of its doctors through emigration to: Australia, Canada, Finland, Portugal, Spain, France, and the US (Nduru, 2006).

A further study conducted by George (2009) indicates that from the 2400 medical graduates in 2006 and 2007, over half indicated that they had strong intentions of emigrating on the completion of their community service and that this was their final decision (George, Quinlan & Reardon, 2009). In 2010, statistics reflect that KwaZulu-Natal alone falls short of 3000 doctors and 1188 specialists (The South African, 2010).

Table 2.3: Shortage of Doctors and Specialists in KwaZulu-Natal

Speciality needed in KwaZulu-Natal	Additional numbers needed
Doctors	3000
Specialists	1188

Whilst there is consistency found in various studies concerning the main destination countries for South African doctors, there is considerable variation and disparities regarding the actual statistics on the number of doctors that have left. This is because official South African migration statistics underestimate the number of healthcare professionals that have emigrated, because this data only includes those who „choose“ to declare themselves as „emigrants“ (Erasmus & Hall, 2003). However, in actual fact, many emigrants decide not to declare themselves for many reasons such as: possible returning agenda’s, tax issues, familial or psychological reasons, etc. (Erasmus & Hall, 2003). Important to note is that because these statistics are so underdeveloped in South Africa (as it is for most developing countries), for various studies to actually trace the mobility of South African health professionals, they have to rely on the data available from the main destination countries that these personnel migrate to. However, this can also prove to be problematic because it is not a true reflection of the magnitude of mobility, because it disregards statistics from less recognized or less common destination countries (Erasmus & Hall, 2003). Figure 2.7 represents the number of South African doctors that have migrated to chief receiving or developed countries.

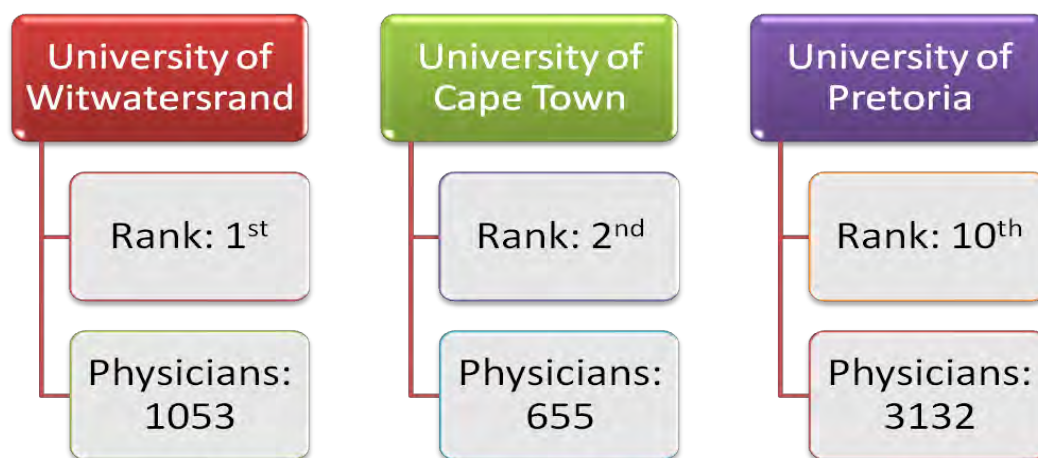
Figure 2.7: Number of South African doctors that have migrated to receiving or developed countries



Source: www.hpcsa.co.za

Hagopian, et al (2004) suggests that another fundamental point that needs to be recognized when assessing the global labour market for South African health professionals is that most of the migration occurs from just a few medical schools. Their study shows that in Africa, there are only ten medical schools that produce 79.4% of doctors that have migrated to the United States. Strikingly, of these ten, South Africa alone has three: The University of Witwatersrand (ranked first); the University of Cape Town (ranked second); and the University of Pretoria (ranked tenth) (Hagopian, Thompson, Fordyce, Johnson, et al., 2004). These institutions alone produced 1840 (almost half) of the total number of migrants (4234) from Africa (i.e. 1053, 655, and 132 physicians respectively) (Hagopian, Thompson, Fordyce, Johnson, et al, 2004). This certainly shows that South African medical doctors are attractive and in demand globally. The following Figure 2.8 represents the number of physicians practising in the United States, produced in three South African universities.

Figure 2.8: Number of South African physicians practising in the United States



In addition, Hagopian, et al (2004) suggest that these findings also emphasize South Africa's loss of investment. The state bears the cost of educating (i.e. the state sponsors a large part of medical school fees) and training all healthcare personnel in the public sector, hence, the migration of these personnel signifies a huge loss in the country's investments (Hagopian, Thompson, Fordyce, Johnson, et al., 2004). The loss of state expenditure will be emphasised in chapter five of this thesis.

The study by the International Organization for Labour Migration also elaborated on the poor likelihood of South African migrant doctors returning home. Many doctors have migrated not merely to advance their jobs and working conditions, but also in response to many social factors, crime in particular. Considering crime as a push factor, many doctors refuse or do not consider returning to South Africa due to the persistence of crime (Wildschut, 2010). One of the doctors interviewed in this study elaborated that he stays updated with the crime statistics in South Africa annually, and the magnitude of crime that prevails through these statistics are suffice in him remaining in the country that he has emigrated to. He stated that regardless of factors such as South Africa being his country of birth and the country that hosts his family, the crime rate alone is a deterrent to his return the country (Wildschut, 2010). The role that social factors play in the shortage of healthcare professionals concurs with a finding of this study.

Additionally, doctors have also stated that returning to South Africa would be considered taking a step back in their careers (HSCPA, 2011). They expressed that the technology, infrastructure, and working conditions that they experience overseas in more developed countries (such as Saudi Arabia for example) are far more conducive to their careers than the conditions in South Africa. They elaborated that in South Africa, working environments did not allow specialised practice, and even though they are highly specialised and skilled, their work gains no recognition and exposure in South Africa (HSCPA, 2011).

Other deterrents include concerns about affirmative action and the diminishing quality in South Africa's healthcare. Many doctors also have a perception that they will not be welcomed back into the country because they may be regarded as „traitors“ or „cowards,“ regardless of the Deputy President Mlambo-Ngucka's statement concerning the welcoming return of doctors that have emigrated. This implies that many doctors and health professionals that leave South Africa do so on a permanent basis with little or no intention to return. Hence, when the country loses its healthcare skill, it often loses it permanently (Wildschut, 2010). It is therefore, estimated that the annual loss of South African doctors alone (i.e. excluding all other healthcare professionals) cost South Africa \$US 1 billion, which is approximately R7.5 billion. Despite a few attempts such as the „Buyelekhaya“ initiative which was a return home programme created by the Health Professionals Council of South Africa (HPCSA) that aimed to encourage South African doctors working abroad to return to South Africa, there has been little return migration of these doctors

back to the country (Wildschut, 2010). This initiative basically attempted to retain South African doctors by dropping any penalties or fines owed by those doctors working abroad. The duration of this program lasted three months (February-April 2007), but was proven to be ineffective due to the small or negligible numbers of doctors that have returned (Wildschut, 2010).

2.3.2 SHORTAGE OF HEALTHCARE PROFESSIONALS: FACTORS

Erasmus & Hall (2003) indicate that the factors behind the migration of South African healthcare professionals coincide with the push and pull factors that apply to the migration of professionals on a whole. Therefore, when assessing these factors, this section will indicate that the push and pull factors affecting the migration of South African healthcare professionals, are similar to the push and pull factors that affect the migration of skilled workers in general. (Erasmus & Hall, 2003). This section, in addition to the following section on the consequences of the shortage of South African health care professionals, shows a reliance on the research conducted by Erasmus & Hall (2003). Whilst there is more recent research conducted concerning the shortage of South African healthcare professionals, these writers remain the only writers that provide a comprehensive and holistic view of the phenomena. In addition, majority of recent literature including many of the sources outlined in this section, were studies based on the findings of these writers. Many sources have referenced their statistics and findings to Erasmus & Hall (2003). For example, statistics concerning the migration trend of doctors in many resources [for example: Breier (2009)], were derived from research conducted by Erasmus & Hall (2003).

The emigration of South African health professionals is a result of both push and pull factors. Push factors in this case refer to the social, political and economic conditions of South Africa that push these personnel to reside in other countries (Lynelley, 2007). Pull factors refer to the social, political and economic conditions that attract these professionals. From the push factors, the most prevalent of these that have been the reasons behind the emigration of South African medical doctors are: crime; perceived or experienced discrimination; low remuneration; governance issues; violence; threats of war; and religious conflict (Lynelley, 2007). The predominant pull factors were: the increased demand for health professionals; ageing populations; good recruitment strategies; career and research prospects (Lynelley, 2007). In addition, Bezuidenhout, Joubert & Struwig (2009) show that another reason behind the migration of South African doctors to more developed countries is due to the high standard of education received by these

professionals in South Africa. They suggest that the high quality of medical education provided in South Africa makes South African doctors the preferable choice (over other African doctors) globally (Bezuidenhout, Joubert, Hiemstra, & Struwig, 2009). They believe that this alone is a feature that makes South African medical doctors prime candidates for recruitment practices for countries such as Canada, Australia, the United Kingdom and the United States. Another way that South African doctors differed from other African doctors was that: they were older and more experienced; 94% of them were trained and qualified with sub-specialties; their expertises were versatile and universally applicable; and the majority of them were male. These were also considered factors that made them more attractive to destination countries (Bezuidenhout, Joubert, Hiemstra, & Struwig, 2009). In addition, countries like Australia and the United Kingdom appreciate the professional and language skills, and the versatility of South African doctors. By versatility, I am implying that South African doctors are able to fill vacancies in rural areas of destination countries (e.g. Canada) (Erasmus & Hall, 2003).

Arnold & Lewinsohn (2010) also conducted a study to determine the reasons for the migration of South African doctors to better developed countries, particularly Australia. Their research suggests that the emigration of South African doctors was a phenomenon occurring from as early as 1948 (Arnold & Lewinsohn, 2010). Over 2000 of these doctors have migrated to Australia from this period. They indicate that South Africa as a developing country is well integrated into the global labour market for healthcare professionals due to better developed countries' dependence on South Africa for the healthcare skill (i.e. healthcare professionals) (Arnold & Lewinsohn, 2010). They concluded their study by stating that it was not actually pull factors or attractions of other countries that caused doctors to migrate out of South Africa into Australia; it was more the push factors from South Africa that forced the emigration of these doctors. Of the 264 participants of the study, only 5% said that it was the pull factors of Australia such as higher salaries; post-graduate training opportunities; tourist attractions; etc. that have facilitated their emigration decision (Arnold & Lewinsohn, 2010). However, when it came to push factors from South Africa, 59% of respondents indicated that push factors from South Africa such as; crime; violence; and their concern for their families' safety and children's future were the primary reasons given for their emigration to Australia (Arnold & Lewinsohn, 2010). Hence, it is important to recognize push factors as having a greater role in the migration of South African doctors (Bezuidenhout, Joubert, Hiemstra, & Struwig, 2009).

The importance of push factors was clearly portrayed by Pillay (2007) who categorized the factors that forced South African doctors to migrate as „endogenous“ and „exogenous“ push factors. Endogenous push factors refer to wages; working risks; job satisfaction; and workload, whilst exogenous push factors refer to social, political and economic opportunities; and lack of family opportunities (Pillay, 2007). The endogenous and exogenous factors introduced by Pillay (2007) are outlined below:

a) Endogenous Push factors:

1. Pay and Work Benefits:

One of the primary push factors for South African doctors is the low salary and remuneration in South Africa compared to many developed countries. For example, a senior doctor working in South Africa would earn approximately \$US 1486, whereas he/ she can earn: \$US 3056 in the US; \$US 2832 in Australia; \$US 2812 in Canada; and \$US2567 in the UK. This indicates that the wages earned in more developed countries are almost double the wages that doctors earn in South Africa (See: Pillay, 2007, HSCPA, 2011).

Table 2.4: International wage comparisons (Doctors)

	South Africa	Australia	Canada	United Kingdom	United States
Senior Doctor	\$US 1486	\$US 2832	\$US 2812	\$US 2567	\$US 3056

2. Working Risks

The second push factor is related to the risks that derive from doctors“ working conditions. Research indicates that South African and many African countries at large, work under the most undesirable and dangerous conditions due to their exposure to HIV/Aids and other infectious diseases. As healthcare in the country deteriorates due to the increased shortage of medical staff, the risk and exposure to infectious Sub-Saharan diseases increases, doctors are forced to migrate to countries with a safer and lower risk working environment (Pillay, 2007).

3. Job Satisfaction

Another predominant push factor is the lack of job satisfaction. Doctors become dissatisfied with their working conditions, especially those conditions that are non-related to financial benefits. For example, many South African doctors suggested that one of the factors that influenced their

decision to emigrate was the bureaucracies that they faced when they were compelled to work in the public sector, which made their jobs very dissatisfying and burdensome. In addition, it can take a period of 30 months for young recruited graduates to receive their first pay (*See: Pillay, 2007; HSCPA, 2010*).

4. Workload

The increased workload due to the AIDS epidemic as well as the shortage of doctors (that increases the workloads of those that remain in South Africa) is also a significant push factor. These two factors combined often lead to burnout and increased stress levels which ultimately push doctors to migrate to countries with less burdensome jobs (*Pillay, 2007*).

b) Exogenous Push Factors:

1. Social, Political and Economic Factors

Many factors that are external to employment are also primary causes for the shortage of doctors in South Africa. Crime in the country has continued to be responsible for the emigration of higher and middle class white and Indian populations (which are the two races that constitute the highest number of doctors). Generally speaking, over 96% of emigrants from South Africa have cited crime as their main reason for leaving the country (*Pillay, 2007*). *Adepoju (2006)* supported this argument in his research that showed that social issues such as abject poverty in South Africa is a push factor that is more compelling in the emigration of South Africa healthcare professionals, than pull factors such as better living conditions that can be met abroad (*Adepoju, 2006*).

Additionally, it has been noted that an increasing number of white South African doctors have fled to other countries after 1994, when South Africa democratized. During the apartheid regime doctors have emigrated in opposition to the apartheid regime, however, after 1994, the reasons for migration have been primarily for economic and professional reasons (*Lynellyn, 2007*). Many white South African doctors felt that after 1994 they were treated unfairly regarding job opportunities and remuneration due to the introduction of affirmative action, which firstly aimed to remove the labour market injustices of apartheid, and to reverse the discrimination allowing for fair discrimination to advance the position of previously marginalized groups (i.e. mainly Africans) (*Lynellyn, 2007*). Since 1994, 37% of the country's doctors have migrated to more developed countries (*Naicker, Plange-Rhule, Tutt & Eastwood, 2009*).

2. Lack of Family Opportunities

A substantial number of doctors have also migrated due to their belief that the standard of education provided in South Africa were below their expectations. As a result, they have migrated to countries where they felt that their children would receive higher and more significant standards of education (Adepoju, 2006). In addition, they have also migrated due to concerns about the future employability of their children. It was believed that South Africa does not have the capacity to provide their children with good higher-skilled employment. South Africa is accused of being unable to develop jobs fast enough to cater for the strikingly fast growing young population (Adepoju, 2006).

All of these factors combined show that the international mobility and the reasons behind the migration of South African health professionals should be put into a broader context, rather than being simply attributed to a small number of bi-lateral policy agreements between source and destination countries (Erasmus & Hall, 2003). Whilst policy agreements do play a role in the mobility of South African healthcare professionals, we have seen that their mobility remains more a personal choice. Additionally, of the broad range of factors cited, it was derived that the push factors played a far greater role in the migration of doctors from South Africa. This implies that when assessing the factors behind the shortage of medical laboratory specialists, the focus of this study should not be the labour market for these professionals only, it needs to look at broader societal and political issues that may influence the migration of medical laboratory specialists.

The role of endogenous and exogenous factors in the shortage of healthcare professionals in South Africa is also exemplified by Erasmus and Breier (2009). For Erasmus & Breier (2009) the shortage of professionals in South Africa should be seen as a product of the country's history of apartheid, as well as the country's attempt to rectify the injustices of apartheid after 1994. More importantly, it should also be seen in relation to the international shortage of skill. The global shortage of skills facilitates the global labour market for knowledge and professionals, in which organisations are involved in the „global shopping“ for skilled workers (Erasmus & Breier, 2009). South African professionals are the preferred choice for most countries due to their qualifications being globally recognised and highly prized. Therefore, the shortage of South African

professionals is a product of the global shortage of skills, in which professionals are recruited to assist countries in overcoming their skill shortages (Erasmus & Breier, 2009).

Concerning healthcare professionals, Erasmus & Breier (2009) indicate that the shortage of doctors in South Africa is due to the global recognition of their expertise. As a result, South African doctors are highly prized assets that are part of the „knowledge shopping list“ of many countries. Countries actively recruit these professionals because they acknowledge that South African healthcare professionals are easily lured by better working, economic and political conditions that they can experience abroad (Erasmus & Breier, 2009). As a result, many doctors migrate to countries of better opportunities because they are propelled by the conditions that they experience in South Africa. Amongst the factors forcing healthcare professionals to migrate, affirmative action; poor public education; crime; unpredictable economy; insecurity; employability of children; and transferability of qualifications, were the predominant reasons cited (Erasmus & Breier, 2009).

In addition, the shortage of doctors in South Africa should also be aggregated to the lack of medical schools in the country. The Department of Health stated that to overcome the shortage of doctors in South Africa, medical schools should increase their graduates from 1200 students a year to 2400 students a year (Erasmus & Breier, 2009). However, the aim to double medical graduates will not be achieved due to the shortage of medical schools in the country. In comparison, the United States of America has one medical school for every two million of the population, whilst South Africa has one medical school per six million of the population. This indicates that the country does not have the capacity and infrastructure to produce a larger number of medical graduates (Erasmus & Breier, 2009). These findings indicate that even for Erasmus & Breier (2009), financial remuneration (i.e. wages) is not the prime motive forcing South African healthcare professionals to emigrate (Erasmus & Breier, 2009). Their research makes no mention of medical laboratory specialists, but stills indicates that the shortage of healthcare professionals in South Africa should not be seen as an outcome of low wages alone (Erasmus & Breier, 2009).

2.3.3 SOUTH AFRICA: A DESTINATION COUNTRY

South Africa, a major donor or source country of health care professionals; is also a major destination country for these professionals. Majority of the health care professionals that immigrate into South Africa are recruited from other African countries as a mechanism to overcome the chronic shortage of health care providers in South Africa. These countries mainly include: Ghana, Zimbabwe, Nigeria, and Botswana (Lynelley, 2007). Additionally, the country's healthcare sector has addressed a few of its human resource problems concerning the acute shortage of doctors by recruiting doctors from countries like Iran and Cuba. Specifically, Cuban doctors are preferred due to their ability to survive and labour in rural conditions. As a result, over 300 Cuban doctors were recruited by South Africa and were allocated to rural areas to practice to assist the country in overcoming the lack of healthcare access in rural areas (Lynelley, 2007). Statistics from the World Health Organization show that over 80% of South Africa's rural doctors are from Cuba, Malawi, Kenya and Zimbabwe (Pillay, 2007). However, it is important to point out that this was not a feasible or successful strategy because Cuban doctors experienced cultural and linguistic difficulties that hampered the success of their recruitment (Lynelley, 2007).

Stuijt (2007) provided a second example of South Africa's reliance on recruiting foreign doctors to try and reverse the medical brain drain process. As of July 2007, more than 1000 Tunisian as well as Cuban doctors have been recruited into South Africa to help South Africa in its battle against one of the country's most prominent epidemics, tuberculosis. A more fundamental point derived from this research is the hiring policies of South Africa as being a primary reason behind the country's shortage of doctors (Stuijt, 2007). Stuijt (2007) states that the South African health minister had blamed the brain drain of doctors for the diminishing of the country's healthcare system. However, he states that it was actually the racial hiring policies after 1994 that caused the medical brain drain. As of 1994, only 2% of healthcare jobs in the country should be comprised of White and Asian healthcare professionals (Stuijt, 2007). As a result, the majority of these professionals have been forced to seek employment abroad. Hence, the country had to rely on the hiring of foreign doctors (from Tunisia and Cuba) to overcome the shortage. However, a large number of tuberculosis patients are still dying from the epidemic due to the lack of foreign doctors understanding that patients can not be cured with any known or common medications (Stuijt, 2007). Foreign doctors that have been recruited are applying their regional or national

knowledge of the disease to cure South Africans which is proving to be problematic. Therefore, Stuijt (2007) emphasizes that it is the failure of South Africa to effectively recruit their national doctors that is the primary reason behind the death of many tuberculosis patients. In addition, foreign healthcare professionals are generally only allowed to practice in South Africa for three years (Stuijt, 2007). This serves as a motive for South Africa to retain its local healthcare professionals (medical laboratory specialists in particular, for the purpose of this study). Concerning medical laboratory specialists, statistics prevail that there are twenty-four anatomical pathologists that have been recruited by South Africa from foreign countries (10% of the country's anatomical pathologists). With regards to virologists, the country employs five foreign virologists (18% of the country's virologists). The predominant countries that South Africa recruits medical laboratory specialists from are: Germany, Belgium, Nigeria, India, Britain, Zimbabwe, and Zambia (HPCSA, 2011). Besides the number of foreign specialists being insufficient to overcome the shortage of medical laboratory specialists in South Africa, the fact that they can only practice in the country for three years signifies that their recruitment temporarily assists South Africa in filling vacant laboratory specialist positions (Stuijt, 2007).

2.3.4. SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS

Whilst the global labour market for health care professionals from South Africa is well documented, most information and research provided on the global labour market for South African health professionals is focused on nurses and doctors. South African medical laboratory specialists are regarded as the most influential parties in healthcare and the most expensive when it comes to their loss (Pillay, 2007). However, there is certainly no mention of medical laboratory specialists in research and literature, implying that South Africa fails to realize the role that these professionals play in providing effective and efficient healthcare. For example, statistics concerning the shortage of healthcare professionals in South Africa directly mention doctors, and a few mention pharmacists and dentists (George, Quinlan & Reardon, 2009). Medical laboratory specialists on the other hand, are never mentioned. If they are, they are placed under the broad label of „other,“ implying that they are very rarely recognized. The World Health organization confesses to this by admitting that data on certain healthcare specialists in South Africa are much less available and in some cases, negligible (See: Pillay, 2007; George, Quinlan & Reardon, 2009). To emphasize, the term „other“ could refer to a broad range of health care professionals (i.e. dentists; audiologists; radiologists; medical laboratory specialists, just to mention a few). For

example, in KwaZulu-Natal alone, there is a shortage of 1188 specialists. Of these, there is no knowledge of how many medical laboratory specialists are needed (The South African, 2010). There is very little or no data on the actual number of medical laboratory specialists registered in the country; the magnitude of their shortage and the numbers that are needed in South Africa; the national and the international labour market for these specialists; and the magnitude and factors behind their emigration out of the country as well as out of the specialty. The negligible recognition given to medical laboratory specialists can be in fact very problematic for South Africa's healthcare system due to their crucial role in healthcare systems. This importance will be highlighted in chapter three of this study which aims to outline the need for South Africa to successfully recruit and retain medical laboratory specialists, by assessing the effects that the absence of their expertise can have on health care systems. Here however, we will assess the global labour market for medical laboratory specialists through a reliance on international literature.

The American Society for Clinical Pathology (2009) illustrates that laboratory services are experiencing a global crisis, particularly due to the shortage of laboratory professionals globally. Their research shows that half of the world's laboratory services are struggling to meet the healthcare demands of their population due to the increase in global competition for hiring medical laboratory specialists (Andrea, Noie, Holladay & Bugbee, 2009). It was reported that in Chicago alone, 66% of laboratories have reported a shortage of laboratory professionals due to the increased competition that prevents them from successfully recruiting and retaining these personnel. Additionally, the survey emphasizes that from all healthcare professionals, medical laboratory professionals are the most difficult to replace. This is due to their specialist training and expertise that makes it problematic for any nation to replace (Andrea, Noie, Holladay & Bugbee, 2009). The competition that arises globally for these specialists is largely due to the acute shortages that countries experience concerning medical laboratory specialists. However, this shortage is due to the rapidly ageing population and staff (Andrea, Noie, Holladay & Bugbee, 2009). As a country's population ages, the demand for healthcare services and prevalence of diseases increases, demanding an increase in the hiring of medical laboratory specialists. Additionally, the rapid ageing of these specialists makes countries rely on recruiting young specialists in order to sustain their laboratory services. However, the same survey indicates that

countries would not recruit young specialists that „they produce“ (Andrea, Noie, Holladay & Bugbee, 2009).

The United States health department shows that by 2012, the country would need 138,000 more laboratory professionals, but a small number of these will actually be trained in the US (Andrea, Holladay & Bugbee, 2009). There are less than 5000 medical laboratory students graduating in the United States every year (Guidi & Lippi, 2006). This is because over 75% of medical students have no awareness of laboratory professions, particularly pathology (which includes: anatomical pathology, chemical pathology, virology, etc.). Hence, besides the failure to recognize medical laboratory specialists, there is also a lack of awareness of medical laboratory professions. What this also implies is the rise in the global labour market for medical laboratory professionals (Andrea, Holladay & Bugbee, 2009). If countries, such as our recently used example (i.e. the United States), can not train and produce an adequate number of medical laboratory professionals to cater for their required demand, then the only available option is to rely on recruiting these skills from other countries. Hence, we note, like any other medical profession, there is also a global labour market for medical laboratory specialists that provide countries (primarily developed countries) with a solution to their acute medical laboratory staff shortages (Andrea, Holladay & Bugbee, 2009).

The global labour market for medical laboratory specialists is emphasized by Beckering & Brunner (2003) who indicate that the vacant positions for medical laboratory specialists worldwide signify a global shortage for these professionals. They too, believe that the shortage should be attributed to the retirement age of the baby boom generation. The large numbers of medical laboratory specialists that have qualified from this generation are reaching retirement ages, which expands the global demand for younger medical laboratory professionals (Beckering & Brunner, 2003). In addition, it is important to attribute the shortage to the lack of recognition that these specialists receive in healthcare systems, because this acts as a deterrent for medical students to enter these specialties. To avoid the huge and significant loss of skill, countries rely on attracting young graduates from overseas, particularly developing countries (Beckering & Brunner, 2003). They believe that because of the decrease in the enrolments of medical students in these professions, hiring laboratory professionals from overseas should be seen as a „practical approach“ for countries to overcome their laboratory staff shortages (Beckering & Brunner,

2003). The findings of these writers provide a foundation to the shortage of medical laboratory specialists in South Africa. Their research may not directly mention South Africa by specialty, but their findings such as the global demand for these specialists due to an increase in the demand for health care, serve as reasons for the shortage of medical laboratory specialists from South Africa. Because medical laboratory specialists are required in half of the world's countries, it would be interesting for this study to assess whether and how this demand facilitates the shortage of the specialists in South Africa.

The Canadian Institute for Health Information (2007) elaborated that the factors behind the migration of medical laboratory specialists are of the same nature as other health professionals. These reasons are determined by the same push and pull factors that have been outlined when assessing the global labour market for healthcare professionals in South Africa (Pitblado, 2007). To recap, a few of the reasons behind the emigration of medical laboratory specialists are: global demand, globally recognized skills, family reasons such as concerns for children's future, crime and other social and political factors in countries of origin, better salary, job satisfaction, work risks, career development reasons, recognition, etc. (Pitblado, 2007). Hence, whilst there is no direct research on the factors behind the migration of South African medical laboratory specialists, if international literature aggregates these to the general factors behind the migration of health care professional in general, then it can be expected that the reasons behind the emigration of South African medical laboratory specialists are similar to the reasons for the emigration of South African doctors.

The only mention of the shortage of medical laboratory specialists in South Africa was found in a research conducted by Michel (2008) concerning the differentiation in laboratory services in Mexico, South Africa, Belgium, and India. His general findings concerning laboratory services indicate the importance of these professionals by stating that for countries to achieve their common goal of providing a high standard of patient care, improved and higher health outcomes, and better health services, there is no doubt that clinicians are needed (Michel, 2008). However, he went on to state that for clinicians to be able to provide these goals, they rely on the services and opinion of medical laboratory staff. Hence, he sees medical laboratory professionals as the most important link in healthcare systems, and their shortage as having the greatest impact on patient care (Michel, 2008). Concerning South Africa, HIV/AIDS was noted as the most

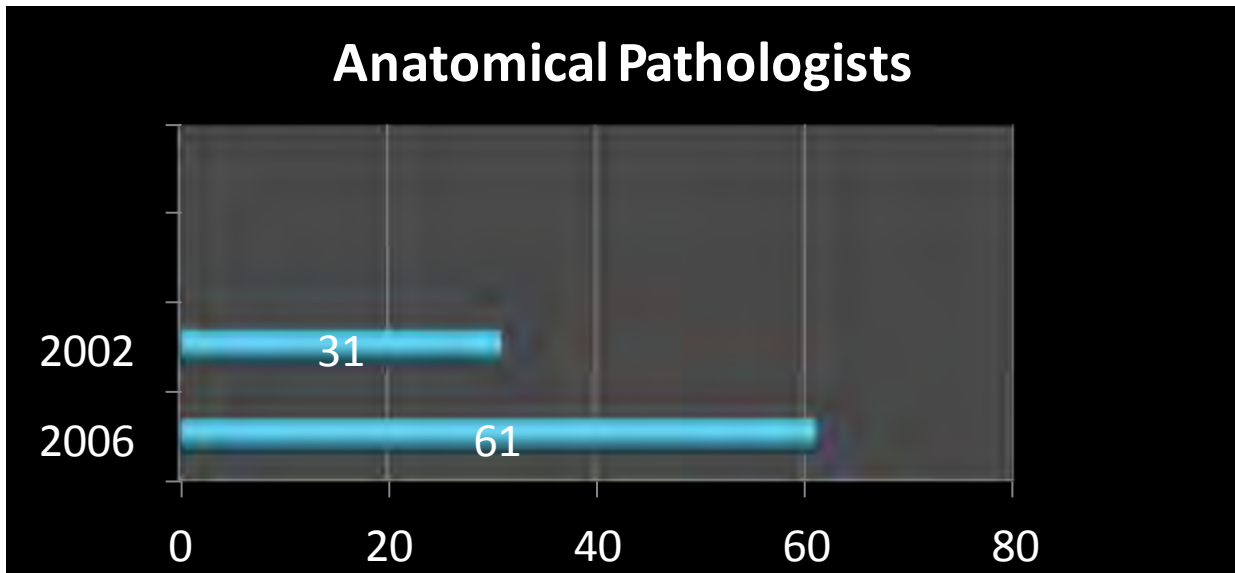
important factor in the healthcare system that needed to be addressed. For it to be addressed however, it needed to be handled by the expertise of medical laboratory specialists (Michel, 2008). Michel (2008) deduced that South Africa experiences the persistent impacts of this epidemic due to the shortage of pathologists and other medical laboratory staff. In addition, he stated that whilst there may be a substantial (not adequate) number of laboratory graduates, the country still experiences a shortage of these skills due to the migration of these professionals (Michel, 2008). He believes that all health care remains local, hence the availability of foreign medical laboratory services is no solution to the acute shortage of the country's laboratory professionals. Whilst the common denominator in all four countries that he researched was the importance and need for laboratory specialists, he also found that their healthcare needs differed (Michel, 2008). In Belgium for example, laboratory services were needed mostly for servicing the ageing population. In India, there was a need to support the use and production of telemedicine in rural areas. South Africa required laboratory services mainly to respond to the HIV/AIDS epidemic. For these reasons, the shortage of medical laboratory specialists due to emigration will have a lasting impact on the country's healthcare system unless the country is able to successfully retain and recruit its „own“ specialists (i.e. South African medical laboratory specialists) (Michel, 2008).

Michel (2008) states that all healthcare remains local, however, in an interview with the editor of Medical Laboratory Online (MLO), he suggested that there will be a move towards a global standardization of the laboratory profession. He shows that there is a trend towards the globalization of the medical laboratory through the universal adoption of medical laboratory programmes. In his interview, he stated that an increasing number of countries are adopting „ISO 15189“ which is a compulsory laboratory accreditation requirement (Bersch, 2009). If more countries partake in this trend, making this a universally accepted accreditation, then we will experience a move towards a truly globalised medical laboratory, meaning that all medical laboratory specialists will acquire credentials and training that can be universally applied. Hence, whilst the current paradigm of medical laboratory specialists suggests that all healthcare remains local, if all countries adopted ISO 15189 as a requirement for laboratory professionals to be accredited, the outcome may not be as positive as anticipated (Bersch, 2009). For me, the universally applicable training and accreditation would make it easier for better developed countries to indulge in the global raiding of medical laboratory specialists from any country. Put

into a South African context, it would be even easier for South African laboratory specialists to emigrate to better developed countries, which in turn would increase the existing shortage of these specialists in the country (Bersch, 2009). Hence, whilst the current dilemma concerning South Africa is that all healthcare remains local implying that the recruitment of foreign specialists is no solution to the shortage the country experiences, the future direction of laboratory services seems to be even more problematic (Bersch, 2009). Taking these perspectives into regard, it becomes even more important for the country to successfully retain and recruit its medical laboratory specialists.

Hale (2009) was another of the few writers that gave recognition to medical laboratory services in South Africa. Whilst his research is limited to anatomical pathology, it provides many fundamental points concerning the nature and problems occurring in the discipline that can be generalized to the laboratory discipline as a whole (Hale, 2009). He shows that South Africa is a country that experiences a huge in flow of migrants, whether it is official or unofficial immigration, for mainly employment purposes. Whilst this may have a positive effect on the economy in certain regards, such as the availability of cheap labour for example, it also brings a variety of foreign diseases and epidemics into the country (Hale, 2009). This increases the population's diversity of diseases, which ultimately increases the demand for those care providers that manage these diseases, anatomical pathologists. Statistics show that there are 160 anatomical pathologists registered in South Africa, yet only 50 of them labour in the public sector. For Hale (2009) this is alarming considering that the public sector in South Africa services over 85% of the country's population, yet only possesses about 30% of the country's anatomical pathologists. Said in an alternate way, there is one pathologist for every million citizens (Hale, 2009). Hence, there is a significant shortage of these specialists in the country, which is amplified by the rapid ageing of these professionals, as well as their migratory behaviour. Even though the number of anatomical pathologists have doubled between 2002 and 2008 (31 to 61), it did not assist in overcoming the shortage of pathologists in the country. Although his research is focused around anatomical pathologists, he goes on to state that South Africa suffers from an acute shortage of the skills of medical laboratory professions as a whole (Hale, 2009).

Figure 2.9: Rise in Anatomical Pathologists in South Africa between 2002 and 2006



Another important point to note from Hale (2009) is that there are 160 registered anatomical pathologists in South Africa. Statistics provided by the Health Professionals Council of South Africa however, indicate that there are 245 registered anatomical pathologists in South Africa (HPCSA, 2011). The variations in statistics illustrate that the actual number of anatomical pathologists in South Africa is unknown, and more importantly, reflects the absence of proper research into medical laboratory specialties in South Africa. This thesis aims to fill this gap by investigating the actual numbers of anatomical pathologists that are in KwaZulu-Natal. Whilst statistics indicate that there are twenty-six anatomical pathologists in KwaZulu-Natal, findings of this study indicate that there are only twenty-three. This study, therefore aims to fill the gap in research concerning medical laboratory specialists by providing a sociological analysis into the labour market for these specialists.

There are no statistics reflecting the exact number of each medical laboratory speciality needed in South Africa, but the shortage of medical laboratory specialists however, is indirectly documented. Statistics prevail that the country requires at least 8000 more specialists. Of this, it is unknown how many anatomical pathologists and virologists are needed. The Health Professionals Council of South Africa (2011) suggests that there is no medical discipline that is in a good position. The report emphasises that all medical fields in South Africa experience significant shortages, and there is no single speciality that is on par with the required number of

professionals needed (HSCPA, 2011). It is only through this, and limited research from Hale (2009) can we deduce that South Africa faces a shortage concerning medical laboratory specialists.

2.4 CONCLUSION

This chapter has assessed the global labour market for medical laboratory specialists. The purpose of structuring this section from elaborating on the global labour market for professionals to the labour market for South Africa's healthcare professionals and medical laboratory specialists was to emphasise common characteristics in the global labour market for medical laboratory specialists and any other speciality. South Africa has shown to be no exception from the laws of the global labour market. The shortage of healthcare professionals in South Africa and the international labour market for these specialists composed of the same characteristics that the labour market for healthcare professionals, or the labour market for professionals in general did. Considering these commonalities provides an indication of the global labour market for medical laboratory specialists. Whilst an attempt was made to investigate the labour market for these specialists, the gap that exist in research concerning the lack of literature on the medical laboratory field did not allow for a full understanding of the nature and characteristics of the global labour market for the speciality. However, the commonalities found concerning the global labour market do provide factors that we can expect to derive from the global labour market for medical laboratory specialists in the discussion section. The gap that exists in research around the sociological analysis of these specialists demands that more recognition be given to these specialists. The viability of providing this recognition will be outlined in the next chapter which aims to highlight the role that medical laboratory specialists play in healthcare systems, and the consequences of the absence of their expertise.

CHAPTER 3

THE SHORTAGE OF MEDICAL LABORATORY SPECIALISTS: CONSEQUENCES AND THEORETICAL FRAMEWORK

This chapter is a continuation of the literature review of the labour market for South African medical laboratory specialists. However, whilst the previous chapter focused on the global labour market for South African medical laboratory specialists, this chapter focuses on the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare system. In addition, this chapter also provides the theoretical framework of this study, by providing the theories that will be used to explain the labour market for South African medical laboratory specialists, and the factors that affect the retention and recruitment of these specialists.

By doing so, this chapter in particular addresses the following research questions of this study:

- 1. What consequences does the shortage of medical laboratory specialists have on South Africa's healthcare system?*
- 2. To what extent do organizational theories such as human relations and human capital theory explain the nature of the labour market for these specialists?*

For this purpose, chapter three is broken down into two parts. The first part of this chapter aims to address the first research question stated above, by assessing the consequences that the shortage of medical laboratory specialists has in South Africa. The motivation behind doing so is to illustrate the necessity for South Africa to successfully retain and recruit its medical laboratory specialists. In addition, this also provides the rationale for this study which assesses the causes behind the poor retention and recruitment of these specialists.

The second part of this chapter is a theoretical overview of this study which answers the second research question stated above. The purpose of this part is to provide reasons behind the use of three theories in this study, by showing how they best explain the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. The theories included are: the human relations, human capital, and job embeddedness theory.

3.1 THE CONSEQUENCES OF THE SHORTAGE OF MEDICAL LABORATORY SPECIALISTS ON SOUTH AFRICA'S HEALTHCARE SYSTEM

The term „skill shortage“ refers to the absence of specific adequately skilled personnel required in a labour market. The term also closely relates to recruitment difficulties, whereby employers are unable to sufficiently employ the skills required in their industry. Findings from a study conducted by Strietska-Ilina (2008) show that the main occupations that experience significant skill shortages are scientists, engineers, healthcare professionals, and information technology specialists (Strietska-Ilina, 2008). However, through research, it was noted that the shortage of healthcare professionals is greatly emphasized suggesting that it is just one of the global occupations that experience a shortage, but the one that has the most detrimental effects due to it involving peoples' health and lives (See: Strietska-Ilina, 2008; Daniels, 2007; Kilpatrick, Johns, Millar, & Routley, 2007). This section aims to outline the impacts that the shortage of medical laboratory specialists has on South Africa. However, due to the lack of literature available on medical laboratory specialists, the consequences outlined firstly refer to health care professionals in general. The purpose of this is to firstly generalize the impacts that health care professionals have, and secondly, to indicate that most of the research on South Africa's healthcare focuses on doctors and nurses, with medical laboratory specialists given negligible recognition. The second part of this section directly highlights the consequences that the shortage of medical laboratory professionals has in South Africa. The reason behind assessing the consequences will be better understood in the third section on part three which emphasises that the consequences outlined suggest a crucial need for South Africa to focus on the effective retention and recruitment of laboratory professionals. Additionally, a few retention and recruitment schemes that South Africa developed will also be highlighted in this section for the purpose of understanding what is it about these policies that result in the failure, and the persistence of the shortage of medical laboratory specialists in the country.

3.1.1 SHORTAGE OF SOUTH AFRICAN HEALTHCARE PROFESSIONALS: CONSEQUENCES

The shortage of health professionals or the „brain drain“ that occurs predominantly in developing countries and nations is a crisis that is well documented. Many writers have acknowledged the consequences of the medical brain drain for healthcare systems. The term “brain drain” is simply defined as the departure of high skilled or well-educated professionals from the labour market of one country to another, usually for financial reasons and better living conditions (Bermeo &

Leblang, 2010). Important to note is that the term does not only include the international migration of skilled workers, but also includes the movement of these individuals from one economic sector of a country to another, or from one field to another. Hence, the term “brain drain” also includes the loss of skills that occur within a country (i.e. migration between specialties) (Bermeo & Leblang, 2010). In this section, the consequences of the shortage of medical laboratory specialists will be assessed.

This section also provides a rationale for this study by emphasizing the need for South Africa to successfully retain and recruit their laboratory professionals. By elaborating on the detrimental effects that the absence of their expertise has on the country’s healthcare system, a foundation will be provided for the need for retention and recruitment strategies. Keep in mind, the shortage of medical laboratory specialists, as noted in chapter two is surrounded by push and pull factors that cause these specialists to migrate, both internationally and between specialties. This section aims to provide the effects of this migration (i.e. shortage) on South Africa’s healthcare system.

The migration of skilled health workers seriously hampers the development of a country and also reduces that country’s ability to provide efficient healthcare and also has negative implications on the social equity of a country (Bermeo & Leblang, 2010). Awases et al. (2004) reported that there are nine effects that the shortage of skilled healthcare personnel has on service delivery. The brain drain of medical skills comprises of many factors that decrease the effectiveness of healthcare systems. These effects are outlined below.

1. Workload

The first effect that the shortage has on healthcare systems is the increase in the *workload* of healthcare personnel. When a country’s healthcare system experiences a shortage due to emigration or even through the failure to train a sufficient number of professionals, the workload of those healthcare professionals that remain in these countries increases, due to a smaller number of professionals servicing that specific population (Awases, Gbary, Nyoni & Chatora, 2004). Those that remain are overburdened with duties, burned-out, and are de-motivated because of workloads. This results in a smaller number of patients being attended to in a specified time (i.e. affects healthcare efficiency), and also affects the quality of healthcare

service provided because patients are given inadequate attention by healthcare professionals, and affects the ability for hospital and other medical institutions to meet the immediate healthcare demands of the community (Awases, Gbary, Nyoni & Chatora, 2004).

2. Health risks

It has been reported that over burdened staff tend to be uncaring and abusive towards patients due to their excessive and stressful workloads. As a result, patients are being diagnosed and treated with less medical attention. Over burdened staff implies that these medical professionals also face more work related *health risks* (Awases, Gbary, Nyoni & Chatora, 2004). For example, in South Africa, more than 16% of the health workforce has contracted HIV/AIDS through exposure to the disease (World Health Organization, 2006). Additionally, many patients are being turned down and refused treatment in public healthcare institutions so that medical professionals can prioritize and capitalize on their private health practices (Chikanda, 2006).

3. Quality of Healthcare

The *quality of healthcare* is severely compromised due to the reliance on non-qualified staff performing duties that were previously performed by qualified personnel. The shortage of health professionals in healthcare systems often require less qualified health care staff to partake in duties that exceed their expertise and capabilities. Examples of this are: a nurse performing the duties of a doctor, or a clinician performing the duties of a medical laboratory specialist (Awases, Gbary, Nyoni & Chatora, 2004).

4. Access to Healthcare

Additionally, in South Africa, the shortage of skilled medical personnel also deepens the *inequality in access* to healthcare due to the grave inequalities that exist in the country's society. The gap between the rich and the poor in South Africa, results in quality healthcare being provided to those who can afford it. The poor on the other hand would be compromised due to their reliance on public health institutions that are over burdened due the shortage of healthcare professionals (Awases, Gbary, Nyoni & Chatora, 2004). In South Africa, this has been amplified due to the extraction of skilled personnel by the private sector. Approximately 80% of the country's population is serviced by the public sector. The overall shortage of skilled healthcare

professionals increases the shortage of healthcare professionals in the public sector, because those from the public sector migrate to the private sector due to the increased availability of jobs (because of the shortage) (Awases, Gbary, Nyoni & Chatora, 2004). This reduces the public sector's ability to provide efficient and qualitative healthcare which affects the healthcare received by 80% of the country's population (Awases, Gbary, Nyoni & Chatora, 2004).

5. Delay in Patient Turnover Time

The public sector's inability to service South Africa's population also implies a *delay* in the time that patients are attended to. The shortage means that patients have to wait longer periods before they can actually receive healthcare, which results in many more deaths. Many patients have reported that they have to wait months before they either receive healthcare or obtain their results from tests. The delay results in patient deaths due to the immediacy of medical advice (Chikanda, 2006).

6. Educational Systems

Awases et al. (2004) showed the shortage of healthcare professionals also negatively affects the *educational systems* of countries experiencing the shortage. These writers suggested that the implications of the migration of health care personnel, particularly the impact on the educational system, are consequences that mostly occur in developing countries (Awases, Gbary, Nyoni & Chatora, 2004). Keep in mind, South Africa falls within this category. Educational systems are affected due to the burden placed on health care professionals. The burden placed on these professionals in health care systems acts as a deterrent for students to enter these professions experiencing a shortage. This reduces the number of healthcare professionals registering and qualifying in these fields (Awases, Gbary, Nyoni & Chatora, 2004). Additionally, the departure of skilled healthcare professionals also implies the departure of skilled teachers and lecturers. Many health care professionals are also involved in research and training. Hence, when a country loses them, they also lose valuable training resources. The loss of these resources has negative implications on the quality of training and education that medical students receive (Awases, Gbary, Nyoni & Chatora, 2004).

7. Reliance on Traditional Healers

In South Africa and many other African countries (such as Zimbabwe for example), there has been an increased reliance on traditional healers in rural communities. The lack of healthcare access to a large number of these countries' rural and poorer populations due to the shortage of medical professionals, has resulted in patients placing their faith in traditional healers who claim to cure many diseases (including HIV/AIDS) (Chikanda, 2006). Diseases as known, require professional medical advice, therefore the reliance on traditional healers has also led to an increase in the number of deaths in these nations (Chikanda, 2006). This reliance is due to Africa comprising 3% of the world's health workers, but 24% of the world's diseases, which implies that Africa has 3% of the global health workforce trying to combat over 24% of the world's disease burden (World Health Organization, 2006).

8. Out-migration and Loss of Investment

The above mentioned consequences impacts South Africa greatly because the country is classified as a developing and a chief sending country of healthcare professionals. The effects of the shortage is amplified by the fact that the country as a developing nation can not replace its lost health care professionals due to the increasing international demand for these personnel, resulting in more out-migration from the country. It is predicted that the emigration of healthcare professionals from South Africa will transform the country's barely adequate healthcare system to one that is entirely dysfunctional in the future, if the country continues to experience the level of out-migration that it currently does (Stewart, Clark & Clark, 2007). The consequences of the shortage of health care professionals that have been noted above also create additional push factors that cause a larger number of professionals to emigrate, by placing even more pressure on those medical professionals that remain (Stewart, Clark & Clark, 2007). The emigration of healthcare professionals from the country (both: out of the country and out of the specialty) also results in the loss of the country's investment. The state bears the cost of training healthcare professionals, and when these professional migrate the result is a loss of the state's investment (Erasmus & Hall, 2003). Statistics prevail that it cost the South African government R 780 000 to train a physician, and even more for higher skilled specialists. Considering the number of health care professionals that have emigrated, it has been estimated that the state has lost well over US\$ 1 billion between 1994 and 2004 (Erasmus & Hall, 2003).

9. Ageing Workforce

Another consequence of the shortage of healthcare professionals is an ageing workforce. A study concerning the impacts that an ageing population would have on healthcare showed that the rising demand for healthcare workers globally has forced developed countries to recruit young medical graduates from developing nations. Developing countries experience a shortage of healthcare professionals due to this demand, and have been left with a rapidly ageing workforce due to the emigration of younger workers (Downey, 2010). Hence, an ageing population is another consequence of the shortage of healthcare professionals in healthcare systems. Whilst this is regarded as a consequence, it also places great strains on the ability of healthcare systems to provide sustainable healthcare. This implies that the ageing population, a consequence that is caused through the shortage of healthcare professionals further exacerbates the shortage (Downey, 2010). This is because healthcare systems that comprise of rapidly ageing populations have professionals that are very close to retirement age. When these professionals retire, they compound the shortage of healthcare professionals because healthcare systems can not sufficiently recruit and retain new and young graduates (Downey, 2010). Therefore, healthcare systems will experience a further shortage due to the retirement of health care professionals, which will ultimately add further strain on a country's ability to provide effective and efficient healthcare.

3.1.2 SHORTAGE OF SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS: CONSEQUENCES

Laboratory services play an integral role in healthcare services, especially in clinical decision-making, by influencing therapies and medical diagnosis (McLane, 2010). Hence, the shortage of medical laboratory specialists due to migration, results in serious negative implications on the quality and accuracy of healthcare in South Africa. Medical laboratory specialists are regarded as the core of medical systems. The absence of their diagnosis and services on the whole, often results in misdiagnosis and patient deaths, because clinical bodies rely on their expertise in patient diagnosis (McLane, 2010). In addition, Bersch (2003) emphasized the rise of healthcare costs is a result of the shortage of medical laboratory specialists. Her research illustrated that when a country faces a shortage of laboratory staff, the cost of healthcare increases (Bersch, 2003). When the cost of healthcare increases, it creates inequalities in access to healthcare, with reliable and effective healthcare being offered to those members of society that can afford private

health insurance (Bersch, 2003). Considering the income inequalities that exist in South Africa, it would be relevant to claim that the shortage of medical laboratory specialists would increase the cost of efficient healthcare, which ultimately deepens the inequalities concerning access to healthcare.

Kershaw (2008) indicates that the majority of patient care in any health system comprises of laboratory testing, hence there will always be a tremendous need and reliance on laboratory services and the human input that goes with it (i.e. medical laboratory specialists). The value and importance of laboratory service will continue to experience a steady growth due to the ever increasing reliance on the expertise of medical laboratory specialists (Kershaw, 2008). In this regard, Kershaw (2008) believes that it is of crucial importance for every national healthcare system to sustain the future of their laboratories through an avoidance of underfunding. He believes that underfunding often involves clinicians to partake in the decision making processes that are usually the tasks of medical laboratory specialists (Kershaw, 2008). This however, reduces the effectiveness of healthcare due to clinicians being inadequately skilled to perform the duties of laboratory specialists (such as predicting the risks of diseases, prescribing treatments, etc.) (Kershaw, 2008).

Lippi & Plebani (2010) indicated that the increased automation and standardization of laboratory services have decreased the involvement and value of laboratory specialists. Specialists are increasingly losing direct control of laboratory testing, and have led to a commodity production method of testing, which has decreased the accuracy of results (Plebani & Lippi, 2010). The importance of laboratory specialists should be sustained, and they should be trained to embark on a more pro-active, rather than reactive role in patient care. In addition, they emphasize the need for specialists to move from the current paradigm of disease diagnosis to preventing diseases (See: Plebani & Lippi, 2010; Blanckaert, 2010).

Petti et al. (2006) emphasized the role that diagnostic services play in providing effective healthcare in South Africa. Due to the prevalence of a wide range of epidemics that occur in Africa, most commonly malaria; HIV/AIDS, tuberculosis, and cancer, laboratory diagnostics play an important role in maintaining a good healthcare system (Petti et al, 2006). However, in

Africa, quality laboratory testing is currently undergoing a crisis concerning people's access to laboratory services. This is largely due to under investment and the lack of skills in laboratories around the continent, with South Africa being no exception. Whilst South Africa may be better off than other African countries concerning healthcare infrastructure, the country still experiences a shortage of laboratory specialists (Petti, Polage, Ronald & Sande, 2006). Petti, et al. (2006) show that twelve million patients die in Africa alone, and whilst these deaths may be uninvestigated, these authors believe that this is a result of misdiagnosis occurring from the lack of access to reliable diagnostic testing in laboratories (Petti et al, 2006).

The concept „clinical misdiagnosis“ has been emphasized by Bates & Maitland (2006) whose research suggested that the magnitude of misdiagnosis that occurs in healthcare is due to the lack of medical laboratory specialists expertise. They believe that this is an indication that healthcare systems should not abstain from investing in laboratory services because by doing so, they are compromising the health of patients (Bates & Maitland, 2006). It is globally accepted that the high cost of laboratory services should not act as a deterrent for countries and states to invest in laboratories, even in developing nations. The significance that laboratory specialists play in providing effective patient treatment is all the motivation and rationale that any country needs to understand the importance of investing in the maintenance of these specialists (Bates & Maitland, 2006). For example, malaria and bacteria are two diseases that have a similar visual structure. When clinicians are required to diagnose these diseases, they often misinterpret them due to the similarities in their structure, resulting in misdiagnosis which often leads to patient deaths. Hence, these writers emphasize the need to invest in the resources and skills of medical laboratory specialists, because it is only these specialists that can ensure diagnostic accuracy in healthcare (Bates & Maitland, 2006).

Whilst research have assessed the loss of medical laboratory specialists from South Africa, and the implications that this could have on the country's national healthcare, their still remains a gap concerning the role that effective retention and recruitment strategies could deal with the ramifications that occur in healthcare systems. Laboratory work is often viewed as a hidden profession, and their work is often stereotyped as: unimportant; repetitive; makes little contribution to healthcare; and fails to gain recognition in the eyes of the public (See: Beckering

& Brunner, 2003; McLane, 2010; Garrrott, 2008). Whilst a gap exists, existing literature on migration and its ripple effects on the healthcare provide a window for the development of human resource retention and recruitment strategies. This study intends on utilizing this opportunity to develop human resource retention strategies that would give South Africa's laboratory service sector the ability to be more attractive to specialists. By doing so, this research would make a contribution towards sustaining and increasing the quality and accuracy of healthcare in South Africa, and overcome compromising patient health and lives. Concerning financial viability, this thesis also aims to indicate the advantages of investing in medical laboratory services by stressing the efficacy of medical laboratory specialists in healthcare.

Given the stereotypes and perceptions of laboratory work as being unimportant, there has been a global reduction in the funding of laboratories. This means that specialists lack the ability to perform accurate and reliable tests that could predict the risks of diseases before symptoms actually occur (Kershaw, 2008). Access to reliable diagnostic testing in South Africa is often devalued, and this leads to misdiagnosis which results in: ineffective healthcare, increases in mortality, and the inability to determine the actual causes of diseases (See: Petti, Polage, Ronald & Sande, 2005; Bates & Maitland, 2006). In addition, these problems are attributed to the lack of human capital (i.e. lack of medical laboratory specialists' expertise), hence a need occurs to ensure the retention and support of these specialists in South Africa (McLane, 2010).

3.2 THE RETENTION AND RECRUITMENT OF SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS

The implications of the shortage of healthcare professionals (particularly medical laboratory specialists) that have been assessed above provide rationale and incentives for South Africa to develop strategies to retain and recruit its medical laboratory specialists. These strategies will sustain a qualitative, effective and efficient healthcare system. In this section, an emphasis will be placed on the need for the country to retain and recruit its medical laboratory specialists as the only solution to overcome the shortage. Additionally, a few recent retention and recruitment measures placed by the South African state will be assessed.

The employee retention model suggests the importance for countries to recruit and retain their workers. The world has transformed into a global village implying that workers are reachable from any destination. This provides an incentive for organizations to develop strategies to retain their employees. The recruitment of new employees cost organizations twelve times more than it would to retain its current employees (Phillips & Connell, 2006). The recruitment of international workers cost organizations 35% more than it would to recruit local workers. This is due to the delay in the time it takes to head hunt these employees, the cost of training beared by the organization, and other recruitment cost (Phillips & Connell, 2006). Studies have highlighted that organizations that succeed, are those organizations that have adequate and functioning employee retention and recruitment plans that help them in sustaining their success in a globalizing world. Organizations that fail to develop these employee plans, face the risk of losing their most talented and skilled employees through the global competition for skills (Phillips & Connell, 2006). A study comprising of the ways of retaining physicians suggested that retaining key healthcare professionals is a matter of concern in any health care system, and is a deeper matter of concern for developing countries. The study shows that due to the input that physicians provide in healthcare, it is of crucial importance to ensure that employee retention plans are specifically designed to cater for their specific requirements (Eskridge, 2009). Even though the focus of this research was physicians, it elaborated that the need to develop retention strategies for other higher skilled staff is just as important. An important point that derived in the research was the introduction of an effective two-way communication system, whereby health care professionals are given a chance to surface their specific needs (Eskridge, 2009). By utilizing this as a foundation strategy, healthcare systems would be able to provide for the actual needs of its professionals, and lowers the risk of misinterpreting and failing to address these needs. In this way, healthcare systems would ensure that they have done everything from their path to retain their most crucial employees (Eskridge, 2009). Whilst Eskrides (2009) study makes no direct mention of medical laboratory specialists, he does provide a foundation for South Africa to understand the need to develop measures to retain and recruit these specialists due to their input in healthcare systems.

Studies conducted on the effects that the automation of laboratory services would have in South Africa by Tanyanyiwa (2010) show that automation is not actually a solution, as many would

think. Due to the loss of skilled laboratory staff to countries such as Europe and America, South Africa has considered automating laboratory services as a solution to the country's human resource crisis (i.e. migration and loss of medical laboratory specialists) (Tanyanyiwa, 2010). However, Tanyanyiwa (2010) illustrated that the automation of laboratory services will not be a solution for the country any time soon. The first problem he outlined is the type of laboratory equipment (such as analyzers) that the country obtains. He stated that when first world countries replace their old technologies with latest and cutting edge technology, they either donate or sell their old and often outdated equipment to countries like South Africa (Tanyanyiwa, 2010). Second hand equipment however, are difficult to service due to the scarcity of spares and the price of spares. Hence, for South Africa to successfully automate its laboratory services to replace the need for human capital (i.e. medical laboratory specialists), it needs to keep up with the latest technology used by first world countries (Tanyanyiwa, 2010). However, this would cost South Africa thrice as much as it would cost Europe for example, due to the cost of shipping and imports. Therefore, Tanyanyiwa (2010) clearly illustrates that laboratory automation is not a strategy that would solve South Africa's human resource crisis, and states that the country has no option but to develop solutions to retain and recruit its skilled workforce as its only solution (Tanyanyiwa, 2010).

3.2.1 SUBSTITUTION POLICIES

Closely related to the retention and recruitment of medical laboratory specialists as the only solution for South Africa, is a study that has assessed substitution policies as strategies to overcome the shortage of medical skilled workers in Africa (Bourgain, Pieretti & Zou, 2008). The high cost of retaining and bringing skilled medical staff back to African countries through strategies such as: increased remuneration; housing provision for those doctors that return; provision of large bonuses as an incentive to return; drastic improvement of working and living conditions, force countries to seek alternate solutions due to the non-feasibility of these strategies (Bourgain, Pieretti & Zou, 2008). A proposed alternative by African countries is to reduce the skills gap between high-skilled and low-skilled health professionals in order to increase the sustainability of high-skilled personnel by replacing them with lower skilled personnel. These are commonly known as substitution strategies which fall under two categories: Direct Substitution and Indirect Substitution. Direct substitution refers to the creation of medical staff

that are less skilled than higher skilled staff (that have migrated), but would still be able to perform the core duties and offer services that are reserved for higher skilled staff (Bourgain, Pieretti & Zou, 2008).

The method requires newly qualified personnel that undergo a three year training program, rather than a five year program undertaken by higher skilled health professionals. Indirect substitution on the other hand refers to the authorization of lower skilled or less specialized workers to carry out and perform the duties that were usually tasks only performed by higher skilled workers (Bourgain, Pieretti & Zou, 2008). A common example of this is when nurses in northern countries and many developing countries have taken over the duties of doctors. Due to the shortage of doctors due to migration for example, nurses would help overcome this shortage by partaking in tasks usually designated to doctors such as injections, prescriptions, etc. (Bourgain, Pieretti & Zou, 2008). Through many simulations on the effects and effectiveness of these strategies, Bourgain; Pieretti & Zou (2008) have indicated that the substitution policies adopted by many Sub-Saharan African countries, including South Africa, often fail to improve the efficiency and effectiveness of health care systems. Whilst these policies may have reduced the growing skill scarcity in Africa, it has done this at a very high and unfeasible cost. Additionally, these policies have actually reduced the effectiveness of healthcare systems due to the duties of skilled doctors being performed by lower skilled personnel, which had failed to eliminate the drop in the productivity of healthcare systems (Bourgain, Pieretti & Zou, 2008). Even though Bourgain; Pieretti & Zou (2008) have successfully assessed the effects of substitution policies in many Sub-Saharan African countries, they, like many other writers have focused their research around doctors and nurses. Their research has no mention of medical laboratory specialists, which are medical personnel with distinct and unique skills and expertise. An assessment of the effects that substitution policies in the medical laboratory field would have indicated whether the skills of these specialists could be substituted with lower skills.

Nevertheless, the general conclusion on the failure of substitution policies in healthcare systems will be deduced to medical laboratory specialists, which will emphasize the need to retain and recruit these specialists, due to the inability to replace their expertise. Results from participants in this study indicate that substitution policies are no solution to overcome the shortage of medical

laboratory specialists, especially anatomical pathologists and virologists (i.e. the sample populations of this study). Medical laboratory specialists are highly skilled personnel who use their specialist expertise in healthcare systems. For example, anatomical pathologists are required to perform eye diagnosis on tissue cells and report on their observations. These specialists can not be replaced with healthcare personnel that are less trained and qualified. There are no machines or technology that can perform the tasks that these specialists perform. Therefore, the only solution to overcome the shortage of medical laboratory specialists is to successfully retain and recruit them in South Africa.

3.2.2 RETENTION AND RECRUITMENT POLICIES

The South African government had recognized the scope regarding the international demand and mobility of its healthcare professionals. Because of this „threat,“ they have introduced a series of measures. However, despite the recent series of measures implemented by the South African government and health sector to retain and recruit South African health professionals, the country still experiences a significant shortage of these personnel (George, Quinlan & Reardon, 2009). In fact, some may argue that the shortage experienced by the health sector is actually a result of the measures themselves. These strategies have transformed from incentives and financial remuneration, to harsher conditions such as penalties that act as a deterrent, preventing healthcare professionals from leaving South Africa.

1. Compulsory Community Service

A commonly debated retention strategy is The Bonding Scheme implemented in 1999, which requires medical graduates to serve in community service for a set period of time (often a period of two years) in order to obtain a licence to practice. However, the outcome of this scheme had been the opposite of its anticipated result which was to retain medical skilled workers in South Africa (George, Quinlan & Reardon, 2009). Generally speaking, most of these health professionals are assigned to disadvantaged and rural communities. Over 46% of the population live in rural areas, but these areas are only served by 12% of the country's doctors (George, Quinlan & Reardon, 2009). The government saw this as a retention opportunity, as well as an opportunity to overcome the lack of healthcare access in these disadvantaged rural areas. Within community service, many graduates were sent to outskirts rural hospitals and worked under

constant pressure; with low supervision; harsh working conditions; unsafe environments and poor infrastructure (George, Quinlan & Reardon, 2009). This has proven to be a deterrent for these graduates to work in South Africa on the completion of their community service. Many refuse to work in such hospitals again, which leads to the migration to the private healthcare sector, and migration to other countries (George, Quinlan & Reardon, 2009).

A study conducted in 2002 shows that from a survey of 1200 doctors in South Africa in the last year of their community service, over 900 expressed that they intend on working abroad (i.e. emigrating) on the completion of their community service, which shows that the compulsory community service measure only retains these doctors temporarily (for the duration of their service). Additionally, many doctors drop out before completing, and other refuse to register for the programme and decide to migrate even before community service. Medical graduates that refuse to enrol in community service are financially penalized, with fines that could exceed a million Rand (George, Quinlan & Reardon, 2009).

2. Altering the Medical Curriculum

Rogerson (2007) has shown that a particular retention initiative that may have been more successful than the above mentioned attempts is the altering of the medical curriculum so that the knowledge and skills that graduates gain are specific to South Africa, and are less transferrable and recognized overseas. This was aimed to ensure that the qualifications better matched South Africa's population and was also aimed to be an effective method of qualifying more healthcare personnel quicker (Rogerson, 2007). An example of how skills are less transferrable can be noted by considering the altering of the medical curriculum. Instead of being trained and skilled for a large series of diseases, health professionals are only trained for those diseases generally specific to South Africa such as: malaria, HIV/AIDS, and sexually transmitted diseases (STDs) which makes them less attractive to industrialized and developed countries. The scheme has deterred out-migration of these employees due to the inability to transfer and apply their skills abroad. However, this attempt also created a ramification in which healthcare professionals felt hostile (Rogerson, 2007).

Educational mechanisms are crucial factors in the migration of skilled healthcare personnel. Many qualified medical laboratory specialists are readily accepted to labour in recipient countries because they have internationally recognized qualifications. However, as said, South Africa altered their training programmes so that they are not recognized internationally; qualifications that only suit the home country of graduates (Martineau, Decker & Bundred, 2004). The success of this scheme remains unknown. Little research has been conducted regarding the outcome and effects that the programme had on retaining and recruiting medical laboratory specialists in South Africa. However, the fact that medical graduates have reported that this scheme had created the feeling of hostility, could very well suggest that the scheme could act as a deterrent for graduates entering specific specialties (such as virology for example) (Martineau, Decker & Bundred, 2004). Whilst nationally recognized qualifications prevent graduates from being recognized abroad, it still needs to be researched as to whether this has actually prevented the migration of these specialists. Reason being is that if these graduates feel hostile, there are chances of them migrating out of the country and out of the field simultaneously, so that they may gain employment abroad (Martineau, Decker & Bundred, 2004). Hence, whilst the effectiveness of this scheme can not be critiqued here, the factors that push medical laboratory specialists derived from this study will allow for an assessment of this program, to gather whether it successfully retains specialists, or actually magnifies the shortage of these specialists (Martineau, Decker & Bundred, 2004).

3. Improving working conditions

Another initiative from the state to assist in retaining and recruiting the country's health professionals was the improvement of their working conditions. The improvement occurred in the public health sector in which wages were increased and working conditions improved to make healthcare jobs in rural areas more attractive. Important to note is that the working conditions that were improved occurred only in rural areas which suggests that this was the governments attempt to transfer healthcare professionals to rural areas to overcome the shortage of these personnel in those areas (Erasmus & Hall, 2003). Healthcare professionals were „motivated“ mainly through non-financial incentives such as: the provision of housing in rural areas; greater social benefits for families; and the provision of security. The financial benefit included a 5% increase for general practitioners, and a 12% wage increase for specialists

working in rural areas (Erasmus & Hall, 2003). The idea behind this scheme was to make the South African labour market for these professionals more attractive, whilst making the international labour market less appealing (Erasmus & Hall, 2003). This scheme however, was accused of being necessary yet having limited scope because it did not seem to address the actual causes of the emigration of healthcare professionals (Erasmus & Hall, 2003).

An example signifying the government's failure to improve working conditions in South Africa is the doctors' strike that occurred in 2009. The strike occurred due to the government's and healthcare sector's failure to recognise the problems experienced by healthcare staff in the public sector (IOL, 2009). Doctors believed that the only reason why the public healthcare system maintained its „supposed“ momentum and effectiveness is because staff have extended their services and responsibilities beyond their contractual responsibilities and remuneration. However, in June 2009, doctors partook in a national strike in response to their deteriorating working conditions (IOL, 2009). The prime reasons behind the strike were:

- a) *Low salaries*: Doctors earned an average of R 8000 a month after studying for 6 years with no benefits; whereas engineers earn approximately R25 000 after four years of study with take home benefits (IOL, 2009).
- b) *Staff Shortages*: Doctors and other healthcare staff were over burdened due to the shortage of healthcare professionals. Many doctors have migrated to greener pastures resulting in a chronic shortage of healthcare staff in South Africa. Those that were left behind have to perform the duties of those that have left (IOL, 2009).
- c) *Poor Infrastructure and working conditions*: Doctors have reported that many public hospitals are not up to standard and this compromises the health of patients. In addition, staff shortages have also facilitated poor working conditions, by requiring some doctors to work thirty hour shifts, for example (IOL, 2009).

Despite the state repeatedly promising to improve their working conditions by increasing salaries and alleviating burdensome workloads, doctors reported that no significant changes have been made. They indicated that whilst the state and media may have accused them of being materialistic and selfish due to their demands, the public however, needs to realise that strike action was not solely to benefit them (IOL, 2009). The strike was also intended on showing the

state that by addressing staff shortages, infrastructure and working conditions, patient lives will not be compromised. However, the demands of doctors and healthcare staff were not met (IOL, 2009).

The failure of the state to sufficiently improve working conditions of healthcare professionals is emphasised by Villiers (2010). Villiers (2010) elaborated that the root of the causes regarding the shortage of doctors is the state's failure to address low and overdue salaries, and poor working conditions (Villiers, 2010). He stated that in 2008, the government implemented a strategy called the Occupation Specific Dispensation (OSD) policy, that aimed to address the problems (particularly the shortage of healthcare professionals) faced by South Africa's healthcare system. The act aimed to retain healthcare professionals through an improvement in remuneration. Additionally, it aimed to develop a career path model for all healthcare occupational categories, which systematically increased healthcare staff's salary based on performance, service time, qualification, scope of employment, and levels of experience (Villiers, 2010). However, Villiers (2010) states that despite the implementation of this act, none of these policies materialised. Whilst nurses obtained a 20% increase in their salaries, doctors remain frustrated at the failure of the government to materialise their policies. As a result, many doctors have moved to greener pastures, compounding the shortage of healthcare problems in South Africa (Villiers, 2010).

Von Holdt & Maserumule (2003) also signify the South African's states failure to address working conditions in the country's health sector. Their research was based on workplace transformations that occurred in one of the country's largest hospitals, Chris Hani Baragwanath Hospital. The transition from apartheid to democracy in South Africa implied a transition in the work settings of the hospital (Von Holdt & Maserumule, 2003). During apartheid the Chris Hani Hospital was a healthcare institution that only served African populations. The transition to democracy did not imply a shift in the communities it serves (i.e. did not re-orientate service to white populations), but rather implied a transformation in the internal work structures and dynamics. This includes two changes: a shift to silo systems of management, and budget reductions (Von Holdt & Maserumule, 2003).

The silo system of management refers to a traditional management model in which specific occupational groups are managed by separate authorities. However, it was noted that the outcome of this managerial style was a dysfunctional healthcare system due to under resourced human resources. It was found that managers and human resource departments were more interested in administration than service (Von Holdt & Maserumule, 2003). As a result, there have been no provisions for staff training, career development and recruitment of more professional staff. In fact, in a matter of a decade from 1994, staff have been reduced from 84% to 47%. These factors aggravated the inefficiency of the hospital, as well as conflict and frustration between staff members (Von Holdt & Maserumule, 2003).

The second factor that aggravated the problems experienced by the hospital was budget reductions. Over a decade from the democratic transition in South Africa, there have been substantial budget cuts in tertiary hospitals (i.e. Chris Hani included). This was due to a shift in healthcare budget allocations from tertiary institutions to primary level institutions, and from well resourced areas, to rural areas (Von Holdt & Maserumule, 2003). The shortage of funds from the state placed the hospital under a tremendous deal of distress, especially when it came to staffing. For example, over 1000 nursing posts were vacant due to the shortage of funding (Von Holdt & Maserumule, 2003). Additionally, many doctors and other healthcare staff had to multi-task to ensure that patients were seen to. A doctor indicated that the shortage of staff placed their healthcare system under severe pressure because patients had to wait lengthy periods before they were attended to. In addition, patients had to be prioritised. This implies that those that required serious attention such as surgery, were seen to, whilst other patients were neglected (Von Holdt & Maserumule, 2003).

Another poor working condition that the state had failed to address was the lack of equipment. There have been many reports of old or malfunctioning equipment. Additionally, nurses have reported that there have been many talks about purchasing new equipment, but these words were never materialised (Von Holdt & Maserumule, 2003). These burdensome workloads and poor working conditions faced by the staff of Chris Hani Hospital have forced many to resign or retire. This further exacerbated staff shortages. Doctors and other high skilled healthcare

professionals had to now make do with whatever resources are available to them (Von Holdt & Maserumule, 2003).

The belief behind the transformation in the Chris Hani hospital was „to make do with the staff on hand.“ The state however, failed to recognize that the problems behind the inefficiency of this hospital were under resourced staff. This example emphasises the state’s inability to enhance working conditions in the healthcare sector (Von Holdt & Maserumule, 2003). Failure to address the underlying problems in the hospital resulted in staff working with impossible workloads under deteriorating conditions. The result at large was the inability to adequately service the surrounding poor African populations (Von Holdt & Maserumule, 2003). The following section elaborates on the state’s failures to address problems experienced in the healthcare sector by indicating the limited success of healthcare redress policies.

3.2.3 POLICIES’ LIMITED SUCCESS:

Erasmus & Hall (2003) showed that the South African government would not achieve much success from the above retention and recruitment measures because these measures treat the symptoms of migration (such as the shortage for example) and not the causes (actual push factors). The state has been accused for having a limited understanding of the emigration of healthcare professionals, and therefore experiences a loss in understanding how to deal with the out migration of their skilled healthcare staff. In order for the state to successfully recruit and retain these workers, it needs to deal with the push factors that „cause“ emigration (Erasmus & Hall, 2003). By focusing mainly on financial remuneration, the state is oblivious of the variety of other factors reported as being responsible for migration. Many emigrants have reported crime, the lack of future prospects for their children, the lack of respect for people and property, the lack of future employability opportunities for children, racism, etc, as priority push factors. Unless the state resolves these issues, improving working conditions alone would prove to have limited scope in the retention and recruitment of the country’s health care professionals, particularly medical laboratory specialists (Erasmus & Hall, 2003).

Focusing on the retention and recruitment of South African doctors also emphasizes the need for „domestic recruitment.“ The International Organization for Migration (IOM) recommended that

South Africa abstains from recruiting foreign healthcare professionals that are proving to be costly and ineffective (Lynellyn, 2007). It suggested that the country strategically identifies gaps in its own human resource issues and addresses them so that it can focus on recruiting and retaining its own stock of health professionals. The domestic recruitment would also place South Africa under the „good code of practice“ banner because by focusing on its own stock of professionals, it would have less reliance on recruiting these professionals from other African countries, which would assist other countries in retaining their own professionals (Lynellyn, 2007).

3.2.4 CONCLUSION

The consequences that the shortage of healthcare professionals and medical laboratory specialists have on South Africa's healthcare system highlight the need for the healthcare sector to effectively recruit and retain these professionals. However, evidence of previous and current retention and recruitment attempts indicates that the country did recognize the impacts that the shortage of healthcare professionals has in South Africa, and have tried to address these shortages through a few retention and recruitment schemes. However, whilst the literature outlined in this section directly referred to the consequences of the shortage of medical laboratory specialists to a certain extent, whether the retention and recruitment policies outlined applies to certain health professionals or health professionals at large (including medical laboratory specialists) remains open for investigation. The retention and recruitment policies have gained recognition in research, but the implications and outcomes of these policies have only been investigated in relation to doctors and healthcare professionals in general. No mention has been made as to whether these policies also apply to medical laboratory specialists, or whether medical laboratory specialists are a part of what literature regards as „healthcare professionals.“ Despite the negligence in assessing the outcomes of these policies in relation to medical laboratory specialists, these policies still hold relevance in this study. Participants indicated that the above mentioned policies are also applicable to medical laboratory specialists. The outcome of these policies in retaining and recruiting medical laboratory specialists however, will be discussed in chapter five of this thesis.

Regardless of the lack of mention of medical laboratory specialists, these policies still suggest a crucial principle: the only plausible approach in retaining and recruiting health care professionals is for the country to address the push factors that facilitate the migration of these workers. Forcing healthcare professionals to remain in South Africa through bonding schemes and motivating them to move to rural areas create a feeling of hostility, resulting in retaining them for a limited period of time. Once these measures are completed (i.e. compulsory community service that last two years), healthcare professionals have the freedom to control their own mobility. Therefore, if the push factors that motivate these professionals to emigrate are not sufficiently addressed, South Africa would not be able to recruit and retain its health care professionals through any other measures (Clark, Stewart & Clark, 2006). Hence, through investigating the factors that push South African medical laboratory specialists to migrate, and the policies available to them in South Africa, this study would be able to show the gap between the retention and recruitment policies available to laboratory specialists (if found that they are the same as the policies outlined here), and their anticipated outcomes (i.e. effective retention and recruitment). Additionally, the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare shows the relevance of, and provides a rationale for this study, and also emphasizes the critical need for South Africa to accentuate the retention and recruitment of these professionals.

3.3 HUMAN RELATION THEORY, HUMAN CAPITAL THEORY, AND JOB EMBEDDEDNESS

Chapter three of this thesis demonstrated that the labour market for medical laboratory specialists exceeds national boundaries and constitutes a global labour market in which their mobility (migration) is highly prevalent. This has resulted in a brain drain phenomenon in many developing countries. However, our definition of the term „brain drain“ elaborated that the international migration of skills is not the only form of migration that occurs. Migration of skills also entails the movement of skills between specialties and fields. Hence, when assessing the extent to which the human relations and human capital theories explain the nature of the labour market for medical laboratory specialists, this study is referring to an attempt to explain the causes, reasons, and consequences of their mobility (international migration as well as migration between specialties) via utilizing these theories as a theoretical lens. Haas (2008) contends that a

weakness in migration research is the tendency to investigate the reasons, causes, and consequences of migration in alienation from theories. He believes that the reasons behind migration and its consequences can not be adequately understood without the use of theory. The use of a single theoretical perspective allows for a deepened understanding of migration (Haas, 2008). Due to this belief, this study aims to utilize the human relations and human capital Theory to deepen our understanding of the factors that affect the retention and recruitment of medical laboratory specialists. Additionally, the theory of job embeddedness will also be used as a modern extension of the human relations theory.

The motivation behind the use of these theories in this study is due to its applicability to the area being researched. This study aims to investigate the factors that affect the retention and recruitment of medical laboratory specialists. Chapter two of this study emphasised that South African healthcare professionals are more deterred by social and political factors rather than economic factors, which correlates with the hypothesis of this study. I hypothesise that the factors affecting the retention and recruitment of medical laboratory specialists are social and political factors, rather than economic. The human relations, human capital, and job embeddedness theories emphasise this by illustrating the role that non-economic factors play in employees' well being and mobility. Therefore, because of my belief that social and political factors play a greater role than economic factors in retaining and recruiting medical laboratory specialists, these theories are used because they provide an explanation of these factors (by linking employee motivation and well being to social and political factors). Human resource retention and recruitment theories such as the objective factor theory, subject factor theory, critical factor theory, and the employee retention theory are weakly connected to social theory. While they directly correlate with the research objective of this study (to assess recruitment and retention factors), they tend to ignore the broader social and societal influences on the retention and recruitment of employees. Therefore, the use of these theories will ignore a broad range of factors affecting the retention and recruitment of medical laboratory specialists. The human relation, human capital, and job embeddedness theories however, provide for an assessment of a holistic range of these factors, because these theories not only include social influences, but broader societal influences that exist outside the workplace.

3.3.1 HUMAN RELATIONS THEORY

Human relations theory, founded by Elton Mayo, is a theory that was derived from a series of Hawthorne experiments conducted at an electrical organization. The initial purpose of these experiments was to prove that when a workplace was properly illuminated, productivity would increase, with an intention of providing employers with a rationale to invest more in electricity (Rose, 2005). The result of the study did prove this, by showing that when changes occurred in the lighting levels of a working area, the productivity of workers increased. When lighting was decreased productivity decreased, and when it was increased, then the productivity of employees increased (Rose, 2005). However, when the experiment was conducted, Elton Mayo also found an outcome that he did not expect. This unanticipated outcome is where “The Hawthorne Effect,” gets its name from. During the experiment, it was also found that when workers were observed and were included in research, they felt a sense of value and belonging in the organization. As a result, their productivity levels increased significantly. It was found that valuing workers and giving them a sense of belonging increased productivity levels more significantly than the changes in illumination did (Rose, 2005). Through this finding, derived the human relations theory based on the premise that when workers are considered and their needs and requirements are addressed, then companies would benefit from an increase in their productivity (Rose, 2005). The Hawthorne effect suggests that social aspects in employment play a large role in motivating workers. The significance of this in this study is because it may be found that social aspects (such as: the failure to appreciate employees’ commitment) may be factors that largely explain South Africa’s failure to successfully recruit and retain medical laboratory specialists.

Another important aspect of the human relation theory derived from a second experiment conducted by Elton Mayo, called the „bank wiring experiment.“ The bank wiring experiment entailed the monitoring of a group of workers that worked together to produce electric components. Despite financial incentives such as bonuses that were offered by management, the group still failed to produce at their optimal level of output (Rose, 2005). The study showed that financial incentives are not the only form of motivation that affects workers productivity. It was found that the productivity levels were more so affected by other factors such as: a desire for a harmonious working group, peer pressure, and communication. The bank wiring experiment

used these findings to imply that these factors are examples of how a broad range of social factors held more relevance to workers than their economic considerations did (Rose, 2005). The Banking experiment suggests a point to be acknowledged: financial incentives are not suffice in motivating employees. A common approach taken by organisations is to increase the earnings of employees to increase their loyalty and productivity. However, this thesis deals with super specialists that are sufficiently remunerated implying that wage increases would not motivate them to remain in South Africa's healthcare sector. Therefore, the banking experiment provides reasons to investigate whether the failure to retain and recruit South African medical laboratory specialists is an outcome of inappropriate strategies, such as wage increases for example.

Hence, the human relations theory argues that employees need to feel valued and a sense of belonging more than they need to be rewarded financially. Workers are not only motivated through financial incentives, but more through a broad range of social factors. These factors include: recognition; group harmony; communication; appreciation; a sense of belonging; pride in one's work; etc (Rose, 2005). Through the development of employee interpersonal skills; group co-operative skills; and employee relationships, this approach influences positive changes in an organization's productivity as well as economic, social and psychological satisfaction of employees. It is believed that an organization reaps the benefits of ensuring that its employees needs are addressed (Rose, 2005).

For example, Dzvimbo (2003) studied the factors behind the movement of skilled workers from developing to developed countries. Even though he suggested that wages was one of the pull factors that attract skilled workers to developed countries, he also emphasised that the wage differentials (as large as they may be between developing and developed countries) are still not enough to motivate skilled workers to migrate internationally (Dzvimbo, 2003). His summary of the push factors that forced professionals to migrate from most African countries showed that the following were the most significant factors: unemployment and the increased dependency of people on wage earners; lack of high socio-economic conditions such as living conditions; the isolation and alienation of many African university professionals due to the lack of finance to upgrade African institutions; discrimination; corruption; discrimination against worker qualifications; and worker competition (Dzvimbo, 2003). Dzvimbo (2003) fails to mention the

relationship between the human relations theory and the factors that push professionals to emigrate, yet his research directly suggest a link between the two by elaborating that wage differentials (i.e. economic factor) are not enough to force people to migrate. The summary of his findings suggest that most of the factors that force professionals to migrate to more developed countries are of a social and political nature which concurs with the argument put forward by the human relations theory: that workers are not only motivated through financial rewards, but more through a broad range of social, political and psychological factors (Dzvimbo, 2003).

The human relation theory provides a rationale for this study to investigate factors affecting the recruitment and retention of workers that go beyond financial benefits. Due to my hypothesis that the factors resulting in the shortage of medical laboratory specialists are more related to social factors rather than wages, I believe that the human relation theory would sufficiently explain and help us understand how and why social and other factors affect the retention and recruitment of these specialists more than economic benefits such as wages do (if found that this is the case). For example, we may find that the shortage of medical laboratory specialists in South Africa is a product of the failure to recognise and value these specialties.

3.3.2 HUMAN CAPITAL THEORY

Human capital theory is an outcome of previous theories that have tried to explain the prevalence of wage differentials between different types of employments and employees (Marshall, 1998). The term „human capital“ is defined as the amount of knowledge; skills; abilities and capabilities that an individual possesses, that can be used economically to raise his salary or job status. Expertise is mainly acquired through an individual’s education, but may also be acquired through exposure, experience and practice. The human capital theory is used in this thesis for three reasons: to explain the consequences of the shortage of medical laboratory specialists, to explain why specialists migrate for human capital opportunities, and to explain how the expertise of medical laboratory specialists increases their mobility. This will be discussed below.

There are three distinct types of human capital that hold relevance in any organization. The first is „general human capital,“ which refers to skills that are easily transferrable to any other job in one’s organization (Marshall, 1998). The transferability of skills improves the productivity of

that individual, often resulting in a wage increase. The second type of human capital is „industry-specific human capital“ which implies that the skills an individual possesses is not exclusive to a certain industry and can be applied and transferred to industries of different nature. However, because these are „industry specific skills,“ the transfer of skills often implies a wage loss, but can still be transferrable (Marshall, 1998). The final type of human capital is „firm-specific human capital“ which refers to skills that can not be transferred to any other firm. These skills being firm-specific simply means that they can only be used in a certain type of firm where these skills are relevant and recognised (Marshall, 1998).

Human capital theory suggests that the skills an employee acquires through education and training increases his/her productivity due to the application of more useful skills, which increases his/her earnings. Hence, personal income of employees differentiate according to the amount of human capital that was invested in (income is directly proportionate to human capital) (Xiao, 1999). The theory derived from Becker (1964) to indicate the importance of formal education and training for organizational investment, due to the positive effects that it would have on organizational productivity. He contended that an investment in human capital creates an indispensable skill based workforce that is crucial for economic growth (Xiao, 1999). The theory stresses the need for workers to possess a formal education, because a formal education is integral in increasing a populations“ production capacity. For organizations to experience economic benefits through the full utilization of its employees, then it is important that the organization contributes large investments towards human capital investment to increase the productivity, efficiency and motivation of workers by providing them with new skills. (Babalola, 2003). The human element and not the capital or technological resources, determines economic success (Babalola, 2003).

The human relations theory also refers to the choices that workers make regarding their human capital investment. Becker (1964) also shows that workers“ decisions around their personal investment in human capital often includes the attractiveness towards jobs that offer human capital investments (that would increase their future income) over jobs with less or no human capital investments. Therefore, workers are also to a certain extent decisive of their human

capital by moving to jobs that are more favourable towards education and training opportunities (Marshall, 1998).

Additionally, because Becker (1964) elaborated on the crucial role that human capital plays in organizations concerning increases in productivity, writers have also highlighted the effects that the loss of human capital would have on organizations and economies (Marshall, 1998). The loss of human capital from an industry or economy, implies a loss of indispensable skills and talent. In certain instances, these losses may be covered through replacements, but are often irreplaceable or really difficult to replace. Therefore, when organizations and economies lose human capital, they are simultaneously losing their productivity, profitability and competitiveness (Marshall, 1998).

A study by Taylor & Martin (2001) attempted to assess the effects that the migration of human capital out of rural areas has on these areas. The relevance of this example will be summarised and related to medical laboratory specialists shortly. Although the research focuses on rural-urban migration, it is important to note that because this form of migration is governed by the same principles of international migration, the consequences between these forms of migration are common (Taylor & Martin, 2001). Therefore, due to the similar principles in migration of labour, the findings of this study concerning the impacts of the loss of human capital are findings that can be generalized as consequences of migration on a whole. Taylor & Edward (2001) indicated that the migration of the young rural generation to urban areas for job opportunities were in fact devastating to rural areas. This is based on their finding that those „chosen to migrate“ do not represent a random sample of the rural population. It is the younger, better educated, more talented and higher achievers that tend to migrate. Rural citizens with the most human capital (i.e. skills) tend to migrate due to the demand for their skills in urban areas (i.e. organizations) (Taylor & Martin, 2001).

From the migrants“ point of view, these writers emphasised that the decision to migrate includes a broad spectrum of push and pull factors and remains a personal choice. However, they also stated that one can not ignore the interplay between human capital and one“s decision to migrate. The young rural generation that are the most commonly noted do not only migrate due to their

possession of human capital, but also migrate in pursuit of human capital (Taylor & Martin, 2001). Young rural citizens migrate to urban areas to enter organizations that offer them human capital development opportunities which would ultimately increase their productivity and wages. Hence, besides migrants being „selected“ based on their human capital, they also migrate for human capital reasons (i.e. training and development) (Taylor & Martin, 2001).

Individuals tend to transfer the education they receive in rural areas to urban labour markets that are rewarding. However, the movement of human capital to urban areas suggests a loss of human capital in rural areas. The lack of human capital in rural areas through emigration has shown to reduce the productivity and labour inputs in rural areas (Taylor & Martin, 2001). The rural areas in this study were agricultural dependant areas. Hence, the loss of human capital implied a decrease in the agricultural productivity resulting in a downward shift in rural economies. Reason being is that these areas no longer possess the skill (i.e. human capital) that sustained and capitalised agricultural activities (Taylor & Martin, 2001).

In summary, Taylor & Edward (2001) highlight three important links between migration and human capital. Firstly, they showed that employees that possess more human capital (more skill) are more likely to be chosen to migrate (due to the demand for their skill). Secondly, individuals migrate in pursuit of human capital whereby they initially intend on taking their education and skills to labour markets in which they will reap economic benefits, and also for the purposes on capitalising on their human capital by moving to jobs that offer education and training opportunities. Lastly, they also implied that because individuals with the most human capital are chosen to migrate, the areas they migrate from experience a reduction in their productivity and a drop in their economy due the loss of these skills (Taylor & Martin, 2001).

Their study may be focused on agricultural rural areas, yet it suggests a few ways in which the human capital theory can be used to understand the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. Firstly, in the light of the human capital theory, medical laboratory specialists could be „chosen“ to migrate because of their expertise. Secondly, the human capital itself could be a factor resulting in the shortage of these specialists because they may partake in migrating (whether internationally or out of the field) in

search for human capital such as: career opportunities, research opportunities, training and development, updated scientific knowledge, etc. Lastly, the loss of medical laboratory specialists through the failure to sufficiently recruit and retain them in South Africa, could also indicate negative consequences on the country's healthcare sector due to the loss of these specialists' human capital (i.e. skills). It is only through the use of this theory, would this study be able to effectively investigate these factors.

3.3.3 JOB EMBEDDEDNESS

The theory of job embeddedness was introduced to explain the various reasons why individuals stay in their jobs and organization. Understanding the reasons that motivate workers to remain in their jobs is of crucial relevance to this study, because this study focuses on the retention and recruitment of medical laboratory specialists. For this study to explain the factors that affect the retention and recruitment of these specialists, it needs to understand what motivates them to remain in South Africa's healthcare sector, as well as what motivates them to leave. In addition, this study also intends on investigating the factors that are external to these specialists' jobs, that motivate them to remain in or abandon these jobs. The theory of job embeddedness provides for this understanding because it explains factors that are found within peoples' jobs, and factors outside of one's job (i.e. on-the job and off-the job factors), that motivate them to remain in their jobs. These explanations not only provide reasons for the shortage of medical laboratory specialists in South Africa, but also provide the methods that need to be adopted to successfully retain and recruit medical laboratory specialists. This is because employee retention can not be understood unless organizations and health care providers see job embeddedness as a necessary utility in creating retention plans.

Founded upon the human relations theory, job embeddedness is often viewed as a modern extension of the human relations theory, and elaborates that individuals are motivated to remain embedded in their jobs for reasons that go beyond financial incentives (e.g. wages) (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). It was noted that financial remuneration is not a factor affecting the job satisfaction of medical laboratory specialists. Therefore, understanding the factors that exceed financial incentives and benefits will assist in deriving at the actual factors that affect the retention and recruitment of these specialists, factors that go beyond economic

benefits. The founders of the theory argue that workers remain in their organizations because they feel a sense of belonging to a social web. These social webs however, consist of relationships that extend beyond the working environment into society. Moreover, employees are embedded through three key influences: *fit, links, and sacrifice*. These influences determine the extent to which employees are embedded in the „social web“ (Mitchell, Holtom, Lee, Sablinski & Erez, 2001).

a) Fit:

„Fit“ refers to the extent to which an employee’s job and community suits and relates to other aspects of his/her life. It is defined as one’s perception of the compatibility and comfort he/she finds in his/her job and in his/her living environment. Organizations need to ensure that an employee’s future plans, personal goals and his/her values are found in the job that he/she is ascribed to. Personal desires need to be fulfilled through the way an employee uses his/her knowledge, skills, and ability in his/her immediate job (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). In addition to fitting into the organization, the employee also needs to find a sense of comfort in the way he/she fits his/her surrounding community and environment. His/her environment needs to comprise of characteristics that he/she seeks, such as: weather, culture, religion, shopping, fishing, transport, sporting activities, entertainment, crime free areas, and so on. The greater extent to which an employee fits his/her job and environment, the higher the likelihood of him/her being embedded to or remaining in the organization (Mitchell, Holtom, Lee, Sablinski & Erez, 2001).

b) Links:

„Links“ refers to both formal and informal connections between an individual and an institution, or between an individual and other people. Job embeddedness suggests that people are connected by a variety of strands in social, psychological and financial webs. The larger the number of webs an individual is connected to, the more he/she becomes bound to his/her job and the organization (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). Important to note is that these „strands“ of webs do not only include connections amongst people within the organization, but also refer to the magnitude to which an employee is connected or linked to people external to the organization such as: friends, groups, family, and the community at large. People that are more

socially integrated, and have more links, often incur greater cost if they leave their jobs. Therefore, the value of their (off-the job and on-the job) links is considered as a factor that motivates them to retain their position in an organization (Mitchell, Holtom, Lee, Sablinski & Erez, 2001).

c) Sacrifice:

„Sacrifice“ is the final influence that refers to the material and psychological cost a person has to incur when he/she leaves his/her job. For example, when an employee leaves his/her job or an organization, he/she sacrifices personal benefits such as: close colleagues, effective self-managed teams, perks, etc. (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). The more an employee has to sacrifice when he/she leaves his/her job, the more he/she becomes embedded to his/her job (because losses will be large if he/she leaves). Other sacrifices in organizations include: job stability, career advancement opportunities, healthcare and other fringe benefits, and flexible working hours) (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). The theory indicates that sacrifices also include community-sacrifices that one has to incur when he/she relocates. These sacrifices could include the movement away from an area that is safe, attractive, respectful, etc. Sacrifices as well, include the perceived on-the job as well as off-the job cost that would be incurred if individuals had to leave their jobs (Mitchell, Holtom, Lee, Sablinski & Erez, 2001).

Therefore, employees are not only motivated by financial rewards, neither are they motivated to remain in their jobs because of factors within their working environment. The concept of job embeddedness indicates that individuals are motivated to stay in their jobs through a broad range of on-the job and off-the job factors (Holtom, & O'Neill, 2004). The concept was not only used to explain the reasons why employees remain loyal to their jobs, but was also used to understand the factors that affect employee retention and recruitment. The theory has been used by many human resource bodies to develop human resource retention and recruitment strategies (Holtom, & O'Neill, 2004). By understanding the broad range of factors that motivate employees to stay in jobs, and the factors that cause them to leave, human resource bodies gain recognition of the importance to develop retention and recruitment strategies that address a range of issues, other than just wages. These issues often refer to factors outside the employment context that affects employee retention and recruitment initiatives (Mitchell, Holtom, Lee, Sablinski & Erez, 2001).

Traditional job turnover theories suggest that employees leave organizations on the basis of two crucial factors: job satisfaction and one's commitment to the job. These theories however, have been criticized for failing to recognize the factors external and unrelated to one's job that may push him/her to leave that job. Job embeddedness on the other hand, is a relatively new construct that incorporates off-the job factors that are responsible for one's decision to remain or leave the job (Holtom, & O'Neill, 2004).

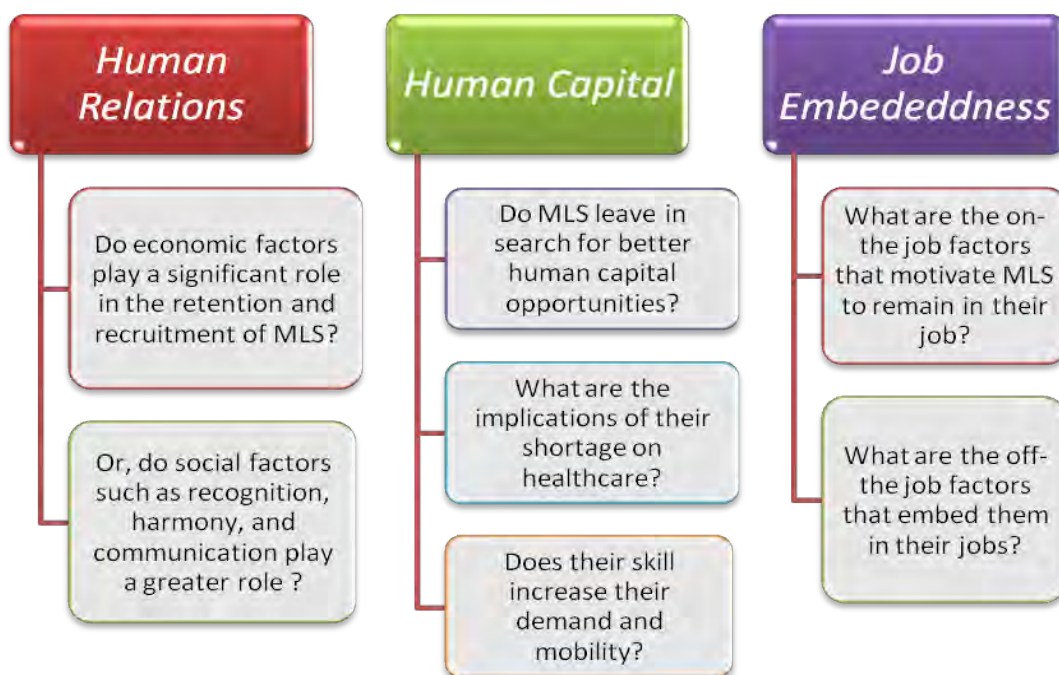
A study by Holtom & O'Neill (2004) provides a practical example of how the concept of job embeddedness could be used as a theoretical framework to develop retention strategies for nurses. Their study suggested that the global shortage of healthcare professionals makes it essential for health care systems to develop comprehensive retention plans (Holtom, & O'Neill, 2004). They believe that as the world globalizes, the most disruptive and expensive problem faced by organizations are employee turnovers (the replacement of employees that have left). This makes retention strategies crucial in every sector including the health sector. However, employee retention can not be understood unless organizations and health care providers see job embeddedness as a necessary utility in creating retention plans. The results obtained from the interviews that these writers conducted with nurses suggest that nurses remain loyal to the organizations that they are employed at and retain their jobs, not only through on-the job factors such as pay, leave, etc; but also through a broad range of factors that are external to their working environment (Holtom, & O'Neill, 2004). For example, nurses have reported that an important retaining factor for them are the links they share with their communities. Because they are healthcare providers that acquire the nature of helping others, community members look up to them, and often place their faith and trust in them (Holtom, & O'Neill, 2004). The links that more experienced nurses have with communities also links them to other educational institutions, high skilled groups and resources of the community that they regarded as career enhancement factors. Additionally, the links that they shared with the community, allowed them to fit better into these communities by finding themselves more comfortable around members of the community (Holtom, & O'Neill, 2004).

The results from this study therefore conclude that the level of job embeddedness experienced by nurses predicts the turnover that health care organizations experience concerning the resignation

of nurses. They indicate that non-financial and external factors are determinants of nurses' decisions to keep their jobs (Holtom, & O'Neill, 2004). Taking these factors into account, the concept provides human resource bodies with more intriguing ways to address recruitment and employee retention issues. The relationship found between the three key influences and the retention of nurses' jobs suggest that the way people fit, link, and the sacrifices they have to incur, at work and out of work determine their willingness to keep a job (Holtom, & O'Neill, 2004).

The following Figure 3.1 summarises the ways in which the three theories assist in explaining the factors that affect the retention and recruitment of medical laboratory specialists (MLS):

Figure 3.1: Factors affecting the retention and recruitment of medical laboratory specialists



3.4 CONCLUSION

In conclusion, the literature outlined in this chapter suggests that major gaps exist in research concerning medical laboratory specialists. Part one of this chapter investigated the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare system. Whilst this section began with the consequences that the shortage of healthcare professionals in

general have on South Africa, the second part of this section illustrates that the implications of the shortage of medical laboratory specialists on South Africa is well documented in literature. However, when assessing the South African state's healthcare and recruitment policies, it was noted that there was no mention on the implications that these policies have on retaining and recruiting the country's medical laboratory specialists. This thesis however, overcomes this gap in chapter five, by assessing the success of these policies in retaining and recruiting these specialists. Nevertheless, the purpose of part two of this chapter was to provide a rationale for the retention and recruitment of medical laboratory specialists in South Africa, by illustrating their role in providing effective healthcare in South Africa. By doing so, this has also provided a rationale for this thesis by indicating the need for South Africa to successfully retain and recruit its medical laboratory specialists.

The second part of chapter three examined the theories that are used in this study. Apart from explaining these theories, part two of this chapter also provides the motive behind using these theories by demonstrating why they best fit this study. The human relations theory supports the hypothesis of this study and helps in understanding the role that non-economic factors play in the retention and recruitment of medical laboratory specialists. The human capital theory builds on this by illustrating the role that human capital (as an attraction, consequence, and motivation) plays in retaining and recruiting these specialists. Finally, the theory of job embeddedness explains the retention and recruitment of medical laboratory specialists through a broad range of factors that go beyond factors at work (i.e. on the job and off the job factors). Job embeddedness will deepen the explanation of these factors by highlighting how they are determined by on-the job as well as off-the job conditions, and the role that fit, links and sacrifices play as factors affecting recruitment and retention attempts.

The factors causing the shortage of medical laboratory specialists and its consequences on South Africa's healthcare system and society can not be adequately understood without the use of theory; hence this study intends on using the human relations, human capital and job embeddedness theory for a deepened understanding of its findings.

CHAPTER 4

RESEARCH METHODOLOGY

To re-iterate, the aim of this thesis is to assess the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. This chapter discusses the specific research methodologies used to achieve this objective. Each research study possesses a unique nature and requires unique research methods. This chapter elaborates on the methods appropriate to this study by beginning with an overview of the philosophy of research which elaborates on the rise of three research methods paradigms: Qualitative, Quantitative and Mixed Methods. Followed by this are: The reason behind selecting a qualitative approach in this study, the research design, sampling methods, data collection techniques, validity techniques, techniques used for answering research questions, data analysis techniques, limitations, and ethical issues of this study.

4.1 PHILOSOPHY OF RESEARCH

There are three methods of inquiry to research: quantitative, qualitative, and a mixed approach. Such approaches permit unique ways of perceiving, measuring, and understanding social realities of the world (Creswell, 2009). These approaches however, are an outcome of larger philosophical research paradigms. These paradigms consist of the Positivist, Interpretive, and Critical Social Sciences research paradigms. The positivist approach to research encompasses using quantitative research methods of inquiry. Quantitative research allows the researcher to gather data scientifically and objectivity because specific techniques are used to conduct this type of research (Welman; Kruger; Mitchell, 2009). Alternatively, interpretive approaches to research employ qualitative methods of research. The use of a subjective approach and detailed observation is the method to arrive at understandings and interpretations of how people make sense of their social surroundings (Welman; Kruger; Mitchell, 2009). Critical social science gives rise to a research method that holds considerable strength because its methods of inquiry include components of both qualitative and quantitative research. This is what is referred to as mixed methods (Creswell, 2009). Below is a table briefly outlining the characteristics of the three methods of inquiry.

Table 4.1: Characteristics of Quantitative, Mixed, and Qualitative Research

	Quantitative Research	Mixed Research	Qualitative Research
Scientific Method	Deductive	Deductive & Inductive	Inductive
Common Research Objectives	Prediction, description, explanation	Objectives are Multiple	Explanation, description, discovery
View of Human Behaviour	Predictable and regular	Predictable to a certain extent	Social, fluid, personal, contextual
Observation Nature	Study behavior in controlled conditions	Study behavior in multi context and conditions	Study behavior in (natural) environment and the context in which these behaviors occur.
Reality Nature	Objective	Realism and Pragmatic view of world	Social construction, subjective and personal level
Data Collection (form)	Quantitative data (uses precise structured and validated data collection tools)	Multiple data collection forms	Qualitative data (researcher is primary data collection tool)
Data (Nature)	Variables	Mixed: Variables and Words, images	Words, images, categories
Data (Analysis)	Statistical relationship derivation	Qualitative and Quantitative	Examine pattern, themes, features

Source: Creswell, 2009; Hesse-Biber & Leavy, 2011; Terre Blanche; Durrheim & Painter, 2008

Qualitative Research

A qualitative method of inquiry was found to be the most applicable method of inquiry for this study. Qualitative research is an approach that seeks to explore a deeper truth of events and situations. Unlike quantitative methods that emphasise frequencies and numbers, qualitative methods are determined to understand or interpret phenomena according to the meaning that people associate with these phenomena (Hennink; Hutter & Bailey, 2011). It utilizes subjective information and facilitates proposing a hypothesis to prove phenomena. Hypotheses are used as

an indication to understand how our social world functions. However, qualitative methods are less driven by formal specific hypotheses and are rather more concerned with the themes and detailed data that emerge from participants. Unbound by formal protocols, qualitative data is non-standard, unconfined, and reliant on the personal experience of the investigator and the participant (Hennink; Hutter & Bailey, 2011).

Unlike quantitative research, research that is qualitative focuses on induction, discovering, theory generation, exploration, with the researcher being the primary tool/instrument for data collection. In other words, qualitative research is initiated with an intention to explore particular aspects, phenomena's or areas (Hesse-Biber & Leavy, 2011). It is noticeably effective for research that wishes to obtain specific responses and information concerning the values, experiences, opinions, behaviours, and other social experiences of certain populations. In short, it focuses on the „human-side“ of phenomena (Creswell, 2009).

The main distinction between qualitative and quantitative methods is their degree of flexibility. Quantitative methods are fairly inflexible due to standard questions asked in data collection. Additionally, responses from participants are „fixed“ and closed-ended which removes the freedom for participants to express their views (Hennink; Hutter & Bailey, 2011). Qualitative methods on the other hand are far more flexible, not only because it involves open ended questions that allow for participants to respond in their desired manner, but also allows researchers to „probe“ during interviews to motivate participants to elaborate (Hennink; Hutter & Bailey, 2011). For example, whilst a quantitative study may ask „what percentage of smokers actually attempt to stop smoking,“ qualitative studies seek deeper issues by asking a question like „what are the factors that cause people to stop smoking?“

4.2 THE APPROPRIATENESS OF A QUALITATIVE APPROACH FOR THIS STUDY

This thesis investigates the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. In order to determine these factors, an exploratory method of inquiry was adopted to *discover* what these factors are. Therefore, the most appropriate research technique to pursue was a qualitative research (Neuman, 2009). In addition, a unique feature of this study is the small sample population of eighteen. For example, according to official statistics gathered by the Health Professions Council of South Africa (HPCSA), the total KwaZulu-Natal population of virologists is three. This number did not permit this study to engage in quantitative methods of inquiry. Quantitative data is useful in making sense of larger sample populations' sizes. However, the sample population of this study was not large enough to conduct a quantitative research study. The prime problem with quantitative research is that it tries to make sense of situations through a set of pre determined variables, in which the results that will be achieved from studies are controlled through knowing in advance what the variables are (Neuman, 2009). However, this study has no knowledge of what the factors are that affect the retention and recruitment of medical laboratory specialists. Hence, conducting quantitative research alone would have been inadequate and inefficient because the variables (i.e. factors) are unknown.

For example, a study concerning why incorrect medication was prescribed to elderly patients in hospitals indicated that for more detailed and accurate results of variables that are unknown, a qualitative study is the best practice to adopt. Through an idea of the reasons behind the prescription of incorrect medication (such as: doctors lack of expertise, communication problems, and uncaring nurses), a quantitative study was initially conducted because researchers suspected the prevalence of certain variables (Terre Blanche; Durrheim & Painter, 2008). However, results of this study indicated that the quantitative approach failed to acquire useful knowledge about the reasons behind the prescription of medication, resulting in no changes being made to improve the appropriateness of prescriptions. (Terre Blanche; Durrheim & Painter, 2008)

It was only through a qualitative method of inquiry did researchers manage to capture the actual reasons behind this dilemma. Through the application of an open-ended, observational, and

inductive qualitative study, researchers discovered that the key reasons behind the prescription of incorrect medication to elderly patients were: because doctors treating these patients fail to adequately investigate the medication that patients have already taken when they arrive at the hospital, they fail to adopt good prescription practices, and they show a paternalistic attitude towards patients which does not allow patients to fully express their health experiences (Terre Blanche; Durrheim & Painter, 2008).

The purpose of providing this example is to emphasize the inappropriateness of a quantitative method of inquiry for this study. A quantitative approach would have required this study to develop a set of pre determined variables (i.e. factors such as: wages and promotion, for example) to investigate. However, by having no knowledge of what these variables are, the application of suspected variables could entail omitting a broad range of other factors that were relevant. For example, if a range of purely economic variables were suspected to constitute as factors, this study may have neglected a broad range of other factors that also affect the retention and recruitment of medical laboratory specialists (such as social and political factors for example). Simply put, a quantitative study would fail to see a holistic picture of the factors affecting the retention and recruitment of these specialists (Hennink; Hutter & Bailey, 2011).

A qualitative approach on the other hand allowed not only for a discovery of what the factors are, but also for an inquiry of *how* these factors affect the retention and recruitment of medical laboratory specialists in South Africa (Hennink; Hutter & Bailey, 2011). The relevance and appropriateness of a qualitative research method for this study will be illustrated through the following advantages of qualitative research:

Firstly, qualitative methods are most appropriate to use when a researcher has an objective to explore, obtain, and interpret a social phenomenon. It allows for a rich description of a phenomenon, as well as a more realistic feel of what can not be explained numerically or statistically (Hennink; Hutter & Bailey, 2011). My research focuses on an in-depth understanding of the factors, which can only be derived mainly through the personal experience of medical laboratory specialists. Quantitative methods would have failed to achieve this because it would have neglected insight on the factors that provide a real understanding of the area being

researched. Quantitative research would only emphasise our existing knowledge or suspicion of factors, but would not tell us what the factors really are (Hennink; Hutter & Bailey, 2011).

Whilst determining the factors that affect the retention and recruitment of medical laboratory specialists is the overall objective of this thesis, this study also: investigated the consequences that the shortage of these specialists have on South Africa's healthcare system; found out what retention and recruitment strategies are available; the success of these strategies; and the role that the international labour market for these specialists play in the shortage of these specialists in South Africa. These objectives too, were best achieved through qualitative research, because the second advantage of qualitative research is its utilization of open ended interviews that allow participants to respond in their own views, gives them the freedom to elaborate in detail, and does not restrict their response (Hennink; Hutter & Bailey, 2011). This provided a holistic view of the above mentioned area's being researched.

The third advantage that qualitative research has in this study is the ability for researchers to „probe“ during interviews. The use of open-ended questions entails fewer restrictions on a researcher than close-ended questions do (Welman; Kruger; Mitchell, 2009). Through open-ended interviews, this study was able to query deeper matters or ask participants to elaborate in certain areas. Additionally, the characteristic of qualitative studies that allows participants to feel more comfortable to express their views and elaborate is that it tends to be less intrusive, allowing for an informal relationship to be built between researcher and participant (Welman; Kruger; Mitchell, 2009). These advantages ensure that more data was obtained through interviews.

Lastly, qualitative research also evokes responses that are unanticipated by the researcher (Hennink; Hutter & Bailey, 2011). This thesis deals with super specialists (i.e. medical laboratory specialists) that have great knowledge and experience in their fields. The main rationale of this thesis is that there has been no prior research on the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. Whilst the method of triangulation utilized sources of information other than interviews to ensure the validity of data, majority of the data obtained to achieve research objectives were gathered through interviews

with these specialists. Hence, through qualitative research methods, participants were able to respond in areas that may have not been included in the objectives of interviews, but may still be relevant to this study (Hennink; Hutter & Bailey, 2011). For example, they could have elaborated on how gender dynamics constitutes as a factor that affects the retention and recruitment of medical laboratory specialists in South Africa.

The above mentioned advantages of conducting a qualitative research illustrate that it was the most applicable method of inquiry for this study. Whilst mixed methods research may be the most common contemporary research method because it is more powerful than any of the single approaches (i.e. qualitative and quantitative), builds on the strengths of each approach, and overcomes the weaknesses of these approaches, a mixed method approach would not be suitable for this study due to the small sample populations (Creswell, 2011). For example, the sample size of virologists for this study is four. This number is not large enough to collect enough quantitative data that would regard this as a mixed methods study. Therefore, a qualitative research method was used. A common misinterpretation is that when a qualitative study utilizes quantitative approaches it becomes a mixed method study. However, quantitative methods can be utilized in a qualitative study, provided that they do not equal the extent to which qualitative methods of inquiry are used (i.e. must be used on a small basis) (Creswell, 2011). This study primarily uses qualitative data, with quantitative data constituting a minute scale of data collected. Quantitative data was only collected concerning demographic information of participants, such as: age, race, and institution qualified at.

4.3 RESEARCH DESIGN: CASE STUDY

A case study was the most appropriate research design for this study. This section defines what a case study is as well as provides reasons as to why it was the most suitable research design to use. Case studies are in-depth, detailed investigations and analysis of complex issues or phenomena. In social sciences, case studies are commonly used to provide detailed understandings of complex social phenomena (Christensen, 2011). A research study that utilizes a case study design can base its approach on single or multiple cases to investigate, and may be based on a combination of both qualitative and quantitative data. Through the use of case studies as qualitative research designs, investigators are able to examine deeper prevailing issues in contemporary real-life experiences (Christensen, 2011).

Well established sources on case studies indicate that a six-step technique needs to be followed to experience the benefits of using case studies in qualitative research (Yin, 2009):

- | | |
|--------------------|---|
| Step one: | <i>Determine the research questions that need to be investigated</i> |
| Step two: | <i>Determine the cases, data gathering techniques, and analysis techniques.</i> |
| Step three: | <i>Preparation to collect data</i> |
| Step four: | <i>Enter field to collect data</i> |
| Step five: | <i>Analyse data</i> |
| Step six: | <i>Prepare report from results</i> |

A case study was the most appropriate research design for this study due to its advantages in research. Case studies facilitate a deeper understanding of complex social phenomena and are more applicable to real life situations (Yin, 2009). This study intended on understanding the factors that affect the retention and recruitment of medical laboratory specialists (a case study of KwaZulu-Natal). The factors that needed to be investigated are social phenomena occurring in the labour market for these specialists. A detailed investigation and understanding of these factors are needed, which was made possible by using a case study.

Terre Blanche, Durrheim & Painter (2008) define a case study as a detailed investigation of particular individuals. The study of individuals to them, allows case studies to provide rich information from participants that are descriptive in nature (Terre Blanche; Durrheim & Painter,

2008). Considering this definition of a case study, we note its significance because this research focused on studying specific individuals (anatomical pathologists and virologists) with an intention of investigating a broad range of issues that affect their retention and recruitment. This data however, could only be derived through the study of the labour market as well as the overall life experience of these personnel, emphasising the appropriateness of using a case study design. It is a valuable method that will encourage participants to share their experiences and knowledge of the factors that determine the retention and recruitment of medical laboratory specialists in South Africa.

Additionally, this study is part of a larger study funded by the Department of Science and Technology on the professional development and labour market for laboratory specialists in South Africa. The larger project intends on providing a detailed understanding of the labour market experience of medical laboratory specialists. This objective however, will only be achieved through the use of a case study that provides rich and detailed data from medical laboratory specialists (Yin, 2009). The larger project is broken into three tiers. The first examines the mobility of medical laboratory specialists between the public and private sector in South Africa. The second part of the project examines the labour processes of medical laboratory specialists. The final part (i.e. this study) examines the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. Apart from the larger project directly relating to the experiences of medical laboratory specialists, we note that the three individual projects also involve a study of the personal experiences of these specialists, which emphasises the need to conduct a case study on this particular population.

An alternate rationale for the adoption of a case study research design was due to its ability to collect and analyse both qualitative and quantitative data in a qualitative study (qualitative-quantitative synthesis) (Yin, 2009). However, if the methods of inquiry (qualitative and quantitative) balance each other, then the research method becomes a mixed method. However, due to the small populations of participants, data collection methods of this study were primarily qualitative, which maintains it as a qualitative study (Yin, 2009).

Case studies, however, like any research method have limitations. A predominant limitation of this research design is that the information derived from participants alone can not ensure the validity, reliability and credibility of data (Creswell, 2009). The section on data validity will indicate the methods that were used in this study to overcome this limitation.

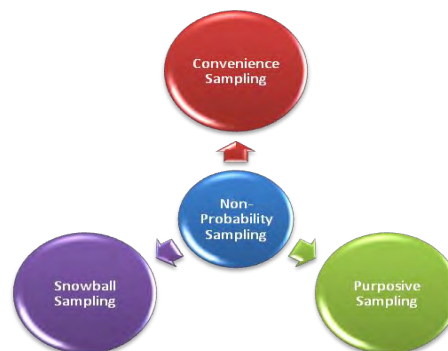
4.4 SAMPLING

Prior to collecting data, researchers are required to decide on a method of selecting participants (i.e. their studies sample). The term „sampling“ refers to the selection of participants for a research study from a population of interest (Babbie, 2011). Populations comprise of all individuals of interest to the investigator. In many instances, studying an entire population of interest can be tedious and costly. However, this can be avoided through the selection of appropriate sampling methods (i.e. selecting suitable candidates from a population of interest) (Christensen, 2011). For researchers to sample individuals of a population, two basic overall sampling techniques are available: probability and non-probability sampling. However, this study used non-probability sampling, which will be discussed below.

Non-Probability Sampling:

In reality, probability samples for research investigation are expensive and difficult to capture. Therefore, the larger portion of research in social sciences relies on non-probability samples. Non-probability sampling refers to the intentional selection of participants for a study. This category of sampling does not involve random based selection of samples because it requires researchers to determine their own sample population (Lohr, 2010).

Figure 4.2: Three types of non-probability sampling



Due to the qualitative nature of this research, non-probability sampling methods were used. These methods are the most appropriate in qualitative research that aim to study phenomena in-depth (i.e. the premise of this study). Qualitative researchers work with smaller non-random sample sizes because it allows them to gather more rich and in-depth data (Lohr, 2010). Purposive sampling was used in this study due to its ability to represent the larger populations from which the samples were extracted.

This study focused on two medical laboratory professions: anatomical pathology and virology. However, factors affecting the retention and recruitment of these specialists were generalised to factors affecting retention and recruitment of medical laboratory specialists in South Africa as a whole. Official Statistics by the Health Professions Council of South Africa (HPCSA) indicate that anatomical pathologists constitute 245 and virologists comprise of 26 of the national population of medical laboratory specialists in South Africa. The KwaZulu-Natal populations of anatomical pathologists and virologist are 26 and 5 respectively (HPCSA, 2010). However, these statistics are not a true indication of the actual number of registered anatomical pathologists and virologists in South Africa. For example, whilst statistics reflect that there are 5 virologists in KwaZulu-Natal; findings from this study contend that there are actually 3 (HPCSA, 2010). The sample of this study consists of 11 registered anatomical pathologists (48% of the actual KZN population) and 2 registered virologists (67% of the actual KZN population). Due to the small number of virologists in KwaZulu-Natal (i.e. 3), 2 virology registrars were included in the study. Additionally, an international migration specialist, a former South African anatomical pathologist, and a microbiologist were included. KwaZulu-Natal has a population of 10.6 million people (HPCSA, 2011).

According to the actual statistics of anatomical pathologists and virologists derived from fieldwork, this implies that there is 1 pathologist per 460, 869 people in KwaZulu-Natal (1.5 per million of population), and 1 virologist per 3, 53 million people in KwaZulu-Natal. This certainly signifies a shortage of these specialists for South Africa. Compared to other countries and capitals, KwaZulu-Natal has fewer pathologists per million people of its population. For example, Rhode Island has a similar population to KwaZulu-Natal (i.e 10.68 million), but has

three pathologists per million of its population. That is double the number that KwaZulu-Natal has (HIPAA Space, 2011).

Table 4.2: Anatomical Pathology and Virology Statistics (KwaZulu-Natal)

	National Population (official statistics)	KwaZulu-Natal Population (official statistics)	KwaZulu-Natal Population (confirmed by fieldwork)	Number of KwaZulu-Natal Population used	Percentage of KwaZulu-Natal (confirmed) Population Used
Anatomical Pathologists (registered)	245	26	23	11	48%
Virologists	25	5	3	2	67%

NB: The National and KZN official statistics are not a true indication of these specialists.

This thesis utilized *purposive sampling* for the selection of participants. Purposive sampling refers to selecting subjects with a specific purpose in mind. It consists of pre-defined groups that determine the selection of candidates (Christensen, 2011). For this study three purposive sampling techniques were used: criterion sampling, stakeholder sampling, and expert sampling. Criterion sampling refers to the selection of individuals to partake in a study depending on a certain criterion. Participants are required to conform to the research criteria emphasising that the availability of subjects and their willingness to participate in a study are not prime concerns. Rather, this form of non-probability sampling is more interested in whether participants fit the research study criteria (Christensen, 2011). By focusing on the factors affecting the recruitment and retention of medical laboratory specialists in South Africa, this study had a criterion that participants were required to meet. Due to this study being a part of a larger project it, focused on anatomical pathologists and virologists. Reason being, other studies are also a part of the larger study which focus on other medical laboratory specialties.

Suitable participants of this study were required to meet two criteria. Firstly, participants were required to belong to one of two medical laboratory specialties: anatomical pathology or virology. Secondly, participants were required to be registered specialists or medical registrars practicing in KwaZulu-Natal. The rationale for including registrars is due to the small size of

populations of registered specialists (e.g. three virologists in KwaZulu-Natal). Using criterion sampling methods 18 of this study's subjects were selected.

The second purposive sampling technique that was used to conduct this research was stakeholder sampling. The technique of stakeholder sampling refers to the selection of stakeholders that are responsible for designing, altering, implementing, and administering particular programmes or services under study (Christensen, 2011). Key stakeholders relevant to my case study such as: human resource practitioners of the National Health Laboratory Services², and the head of departments for virology and anatomical pathology were approached to participate. However, due to the lack of participation from the National Health Laboratory Service, stakeholders belonging to this organization including head of departments for virology and anatomical pathology could not be interviewed.

Lastly, expert purposive sampling methods were used to identify individuals that have particular expertise in certain fields, that are able to expand researcher's knowledge on certain areas (Christensen, 2011). This study included a migration specialist to gain a better understanding of the international factors affecting the retention and recruitment of medical laboratory specialists in South Africa. Below is a list of participants that have been interviewed in this study:

² See also: Appendix

Table 4.3: Participants interviewed in the study³

	NAME	POSITION	PUBLIC OR PRIVATE	RACE	GENDER
1	Dr Van Vuuren	Anatomical Pathologist	Private	White	Male
2	Dr Watkins	Anatomical Pathologist	Private	White	Male
3	Dr Subramoney	Anatomical Pathologist	Public	African	Male
4	Dr. Dr Ndlovu	Anatomical Pathologist	Public	African	Male
5	Dr Rampersad	Anatomical Pathologist	Public	Indian	Male
6	Dr Suraj	Anatomical Pathologist	Public	Indian	Male
7	Dr Aniruth	Anatomical Pathologist	Private	Indian	Male
8	Dr Maharaj	Anatomical Pathologist	Private	Indian	Male
9	Dr Chetty	Anatomical Pathologist	Private	Indian	Female
10	Dr. Mkhize	Anatomical Pathologist	Public	African	Male
11	Dr. Nair	Anatomical Pathologist	Private	Indian	Male
12	Dr. Butler	Virologist	Private	White	Male
13	Dr. Dangor	Virologist	Public	Indian	Male
14	Dr. Kazi	Virology Registrar	Public	Indian	Female
15	Dr. Essop	Virology Registrar	Public	Indian	Female
16	Dr. Manderee	Anatomical Pathologist	Private (United States)	Indian	Male
17	Dr. Pather	Migration Expert	Public	Indian	Male
18	Dr Ramlucken	Microbiologist	Public	Indian	Male

4.5 DATA COLLECTION

Qualitative research is largely understood by its method of inquiry characteristic. By „method“ of inquiry, this implies that qualitative research is defined by the manner in which data is collected. Data collection procedures allow researchers to systematically obtain data from the objects of their research (i.e. people) (Silverman, 2011). There were two methods and procedures used to collect data in this study. This section highlights these methods and procedures.

1) In-depth Interviews

An interview is an oral questioning technique conducted with respondents, either individually or in groups. In-depth interviews were the primary method of data collection used in this study. In-depth interviews refer to one-on-one discussions of specific topics and themes between

³ Please note: the names of participants that appear in this table and throughout this study are pseudonyms.

investigators and participants of a study (Hennink; Hutter & Bailey, 2011). It is also commonly described as a purposive conversation between investigators and participants. This form of interview is used when researchers seek information regarding individual and personal experiences of people on specific issues and topics. During in-depth interviews, researchers pose questions and motivate respondents to share their knowledge and perspectives (Hennink; Hutter & Bailey, 2011). The structure of in-depth interviews, however, differs according to the type of in-depth interview used by researchers. In qualitative research, three types of interviews are available to researchers (Figure 4.3):

Figure 4.3: Three types of interviews available to researchers



This thesis used *Semi-structured interviews* as a method of data collection. A total of 18 semi-structured interviews were conducted, and responses from participants were verbally recorded. The average length of the interviews conducted in this study was an hour. Semi-structured interviews, as depicted in the diagram, refer to a combination of both structured and unstructured interviews (Hennink; Hutter & Bailey, 2011). Semi-structured interviews were utilized as an instrument for data collection, due to it being regarded as the best method of capturing a person's views and thoughts regarding a matter. In semi-structured interviews, researchers have a list of themes, areas, and questions that they wish to cover during interviews (Welman; Kruger; Mitchell, 2009). Similar to structured interviews, interview schedules are developed prior to interviews. However, this type of interview differs from structured interviews concerning its degree of flexibility. Researchers using semi-structured interviews are allowed to formulate additional questions during the course of the interview (Welman; Kruger; Mitchell, 2009). This thesis used semi-structured interviews due to ability to develop additional questions during interviews to discuss matters as they arose during the interviews. It was found that the use of semi-structured interviews worked for this study by allowing for more relevant data to be collected. For example, I found that by being able to manipulate interview schedules by removing or adding on questions, a larger amount of relevant and in-depth data was collected from participants.

A second advantage of semi-structured interviews that I found in this study was its versatility. Semi-structured interviews allow for researchers to refrain from asking every participant the same set of questions. Different questions can be asked to each participant depending on the context of the interview (such as the organizational context for example) (Hennink; Hutter & Bailey, 2011). In the duration of interviews, it was found that certain questions have been adequately answered. By using semi-structured interviews, this study was able to move on from exploring areas that have been sufficiently answered to areas of new interest (Hennink; Hutter & Bailey, 2011).

Semi-structured interviews also allow researchers to „probe“ during interviews. Probing is method used in interviews that facilitate the elaboration and clarity of responses (Welman; Kruger; Mitchell, 2009). By being able to probe during interviews, I found that respondents were understandable and concise in their responses, and elaborated more. Probing provided for the collection of more rich and meaningful data. If I found that participants did not sufficiently answer a question or elaborate, I used the method of probing to encourage them to elaborate. For example, if a participant stated that he/she did not believe that crime was a factor affecting the recruitment of medical laboratory specialists, I was able to ask him or her why it is not a factor. Without being able to probe, this study would have ignored or neglected large amounts of relevant data. For example, an idea of the factors affecting the retention and recruitment of medical laboratory specialists would be known, without an idea of why these constitute as factors. Therefore, probing was found to be a crucial tool in the data collection stage of this study. An additional benefit of using semi-structure interviews was because it tended to be a less intrusive two-way communication between participants and the inquirer, and participants were allowed to ask the inquirer questions (Welman; Kruger; Mitchell, 2009).

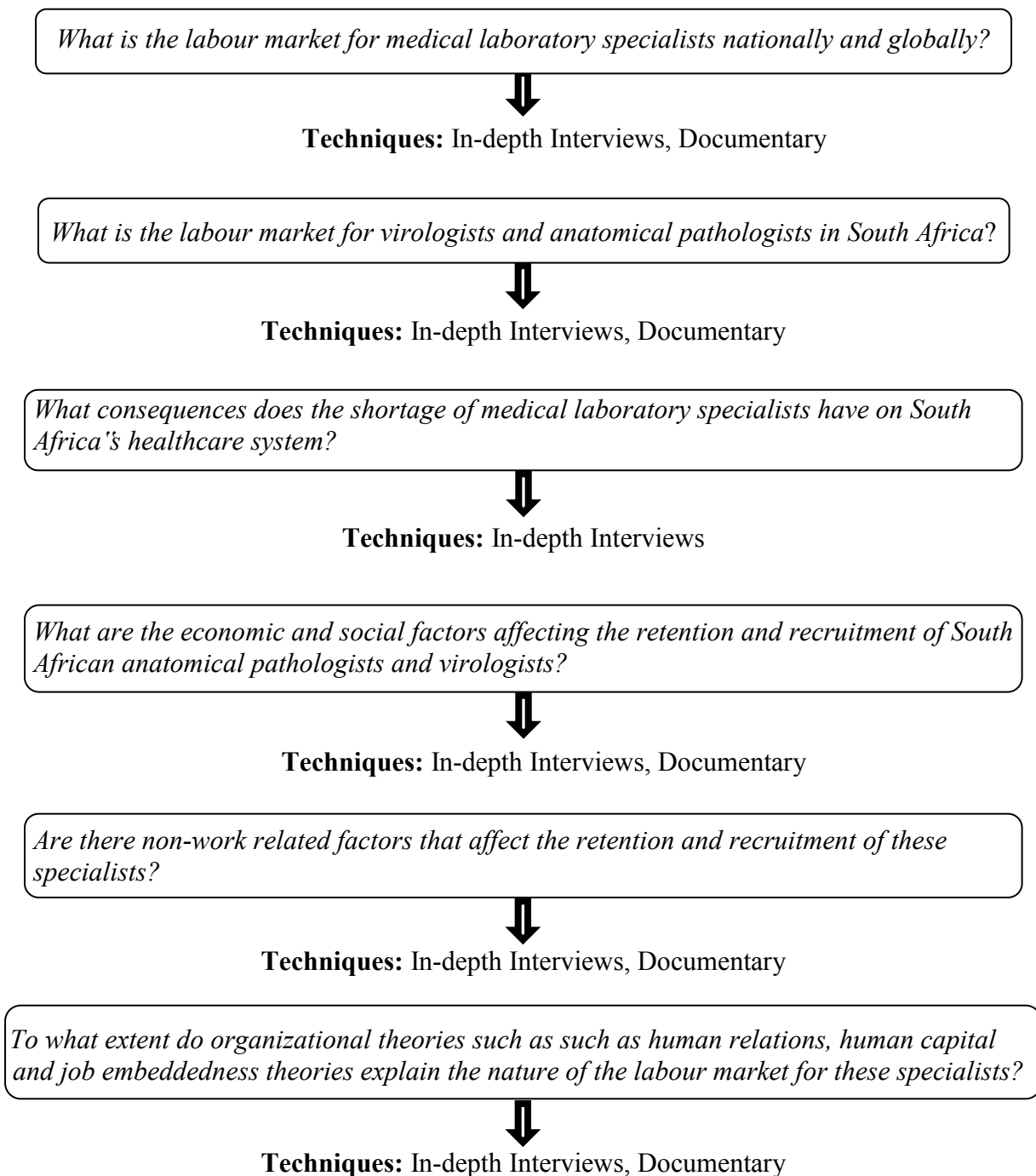
2) Documentary Data Collection

Documentary is a data collection technique that involves the collection and study of existing documents, which is used in research to understand results obtained through other methods of data collection (i.e. interviews), or to compare to these results. These include: literature on previous studies, government reports, media publishes, personal documents (e.g. diaries),

procedural documents, photographs, and letters (Ritchie & Lewis, 2008). The collection and analysis of documentary is particularly useful in qualitative research when situations or areas under study can not be explained or understood through interviews or direct observation alone (Ritchie & Lewis, 2008). This study not only used documentary data collection as a method of understanding the phenomena under study, but also as a method of ensuring the validity of data obtained in this study (as reliable sources of information). This will be discussed in the section on triangulation. The documents used in this study included: magazines such as “The Bulletin,” statistics from the Health professionals Council of South Africa, websites such as: The National Health Laboratory Service, The World Health Organization, South African media news articles (from sources such as: The Mail and Guardian, books, journals and theses).

4.6 RESEARCH QUESTIONS

This section illustrates which of the above mentioned techniques and methods were used to answer the research questions of this study. The primary objective of this study is *to assess the factors that affect the retention and recruitment of medical laboratory specialists in South Africa*, which is achieved through the following secondary objectives:



4.7 VALIDITY: TRIANGULATION

Triangulation is a technique used in this study to ensure the validity of the data collected. Triangulation is a powerful technique used to ensure that the data obtained in this study is valid. The term originated in land surveying to describe and mark a specific position on land in relation to two other coordinates (position) (Creswell, 2009). Through land marking two other positions, land surveyors ensure the correctness of their position. Triangulation, although derived in land surveying, is a concept widely used in many other fields to refer to the use of multiple perspectives to verify one's position (Creswell, 2009).

In social sciences, the term triangulation refers to the use of more than two methods to ensure reliability and validity of data. Materials are collected through a diverse range of sources and a diverse range of methods. Through cross verification or cross examination between the different methods of collecting data and between the various sources of data, allows for a better and deeper understanding of a phenomenon because it is approached from various angles (Welman; Kruger; Mitchell, 2009). A critic of qualitative studies is that researchers are often biased in the manner in which they collect data, resulting in them leaning data collection and analysis towards their personal biases. However, through triangulation, researchers overcome this limitation through the cross examination of data from more than two sources. The overall outcome of triangulation is validity and greater credibility of research results (Welman; Kruger; Mitchell, 2009).

There are four distinct types of triangulation, which are basically defined as follows:

Data triangulation: the use of more than two data sources.

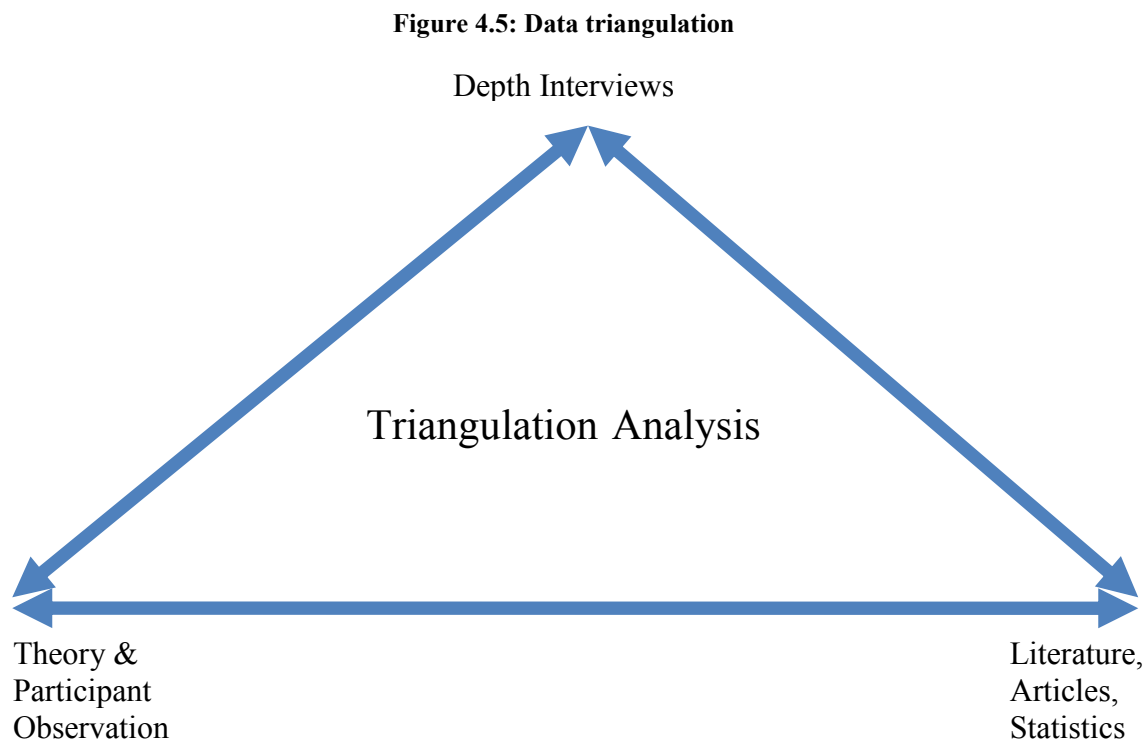
Investigator triangulation: use of more than two investigators.

Theory triangulation: use of more than two theories in interpreting and explaining results.

Methodological triangulation: the use of more than two methods to research a single problem.

Data triangulation from the above mentioned types of triangulation was the most appropriate for the purpose of this study. This type of triangulation utilizes more than two data sources to verify the validity of research results and hypotheses. Through a cross-examination of the different data sources, a researcher attains credibility in his/her results (Welman; Kruger; Mitchell, 2009). This

study aims to examine the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. The manner in which data was collected was primarily through semi-structured interviews with anatomical pathologists and virologists. However, we need to keep in mind that qualitative studies are generally subjective and the data originated from these personnel are their opinions and views, and may not necessarily be entirely true (Welman; Kruger; Mitchell, 2009). Therefore,, this study utilizes other sources that were used when cross examining the results obtained from participants, which was also used to verify my position or rather hypothesis. Other sources of data include: statistics that reflect the number of specialists registered in South Africa and the shortage of these personnel; articles linked to the topic of this study such as “The Bulletin” by the Health Professionals Council of South Africa (HPCSA) for example; various literature sources such as: books, journals, theses, etc.; and theories that explain the relevance and credibility of the data obtained through interviews indicating the factors affecting retention and recruitment of medical laboratory specialists. Results from interviews were compared to these sources and theories to ensure that the information provided from participants were valid.



4.8 DATA ANALYSIS

The collection of data through in-depth interviews, and documentary were generated into written transcripts. Written transcripts are the common form of data that is analysed in qualitative research (Ritchie & Lewis, 2008). This section describes the processes and methods adopted to analyse these transcripts. The term data analysis refers to a process of captivation, whereby researchers implement procedures to understand, identify and interpret data that has been collected in a research study (Bernard & Ryan, 2010). Qualitative data analysis is regarded as an „art“ that is associated with creativity and flexibility. Researchers interpret, understand, and explain human experiences through the „art“ of qualitative research, the various data analysis options available to researchers. It is through these procedures, that researchers are able to manage and make sense of participants’ multi-perspectives (Bernard & Ryan, 2010).

Every qualitative study is unique and requires a unique data analysis procedure. The analysis of qualitative data includes identifying patterns, coding data, and categorising the patterns found in data. The clarity and relevance of these findings however, depends on the data analysis method or procedure adopted by the researcher (Bernard & Ryan, 2010). Data can be analysed using five procedures: Discourse analysis, conversational analysis, thematic analysis, grounded theory, and narrative analysis. Data in this study was analysed using a thematic analysis.

Thematic Analysis

Being a qualitative research, data collection in this study resulted in obtaining large amounts of subjective, rich and detailed data. The data collected originated from the two methods of data collection as described above (semi-structured interviews and field notes). The intention behind this thesis is to derive at the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. In order for the large amount of data to be pared down into major themes and categories that represent and derive at these factors, the most suitable data analysis for this study was a thematic analysis.

A thematic analysis refers to a type of qualitative data analysis based on the researcher’s ability to identify themes in the qualitative data collected (Silverman, 2011). It refers to a method of identifying, analysing, and reporting patterns and themes that are discovered in data. It is regarded as a simple way of categorising qualitative data through an application of codes

(Silverman, 2011). „Codes“ refer to the creation of categories from data gathered through: field notes, interviews, documentary, video footage, or photographs. Data that are found to be similar are coded under a single umbrella due to them being regarded as „the same“ (Welman; Kruger; Mitchell, 2009). The ultimate task of researchers using thematic analysis is to identify a number of themes that are able to reflect their data, by searching through their data for recurring patterns. Themes refer to the capturing of important information in data that are related to the research questions of a study, which symbolize levels of patterned response or connotations within data sets. Additionally, an important characteristic of a theme is not the ability to quantify something, but its ability to capture information that is of relevance to the research questions of a study (Welman; Kruger; Mitchell, 2009).

There are six phases to conducting a thematic analysis. These phases however are not unique to thematic analysis and may also be found in other data analysis techniques to a certain extent. In addition, these phases do not form a strict linear process. Instead, they constitute a recursive process, whereby researchers are required to constantly move back and forth in each process (Silverman, 2011). The six phases in thematic analysis used in this study are summarised as follows:

Figure 4.6: Six phase process to thematic analysis



1) Familiarisation of data:

Before developing themes and categories, researchers need to familiarise themselves with the data that they have collected. The familiarisation with data ensures that the researchers have sufficient knowledge of the various issues that arise, which would inspire analytical interest and thoughts of the themes that are embedded within their data sets (Silverman, 2011). It is important that researchers immerse themselves in the data so that they are thoroughly familiar with the

content. Immersion involves the repetitive reading through the data in an active way, so that meanings, patterns, and ideas can be noted (Silverman, 2011). The initial step in the data analysis phase of this study was to transcribe verbal data into written transcripts. Once this was complete, this data was repeatedly examined for ideas and topics that were contained within.

2) Generation of Initial Codes

The familiarisation of data allows for a list of ideas and topics to be generated. From this list, the next step is to formulate initial codes from data. Codes refer to issues, ideas, topics, and opinions that are evident in data collected in a study (Hennink; Hutter & Bailey, 2011). Through coding, data can be organised into meaningful groups. In order for researchers to code their data correctly, they need to consider the following: the meaning and representation of the data, the general or overall category that the data belongs to, and the potential topics and themes that data fall under (Silverman, 2011). Contemporary research allows researchers to code their data with the help of computer generated software. An example of such software is NVivo. NVivo is a useful program that analyses, manages, shapes and categorises qualitative data. The program was specifically designed for analysing qualitative research that contains large volumes and rich text-based data (www.qsrinternational.com). Whilst I have attended NVivo training, the date of the training was too late into this project. Therefore, I preferred to manually code data, because the sample was manageable.

3) Search for Themes

Coding allows researchers to have an idea of the potential themes that arise from data. The third phase of a thematic analysis of this study involved the search of the different themes that arise from coded data. Data that has been coded were analysed for emerging themes. Once a list of potential themes was generated, coded data was organised according to the theme they were relevant to. This means that data under different coded may have been brought together under single overarching themes (Silverman, 2011). The predominant initial set of themes that arose in this study included: the shortage, working conditions, retention factors, recruitment factors, consequences of human capital shortage, on the job factors for migration, off the job factors for migration, contributions of educational systems, social conditions, economic conditions, and exposure.

4) Review of Themes

During phase four, the themes that arose from coded data were refined. Themes that have been generated in phase three should be regarded as a draft list of themes. In phase four, these themes were broken down into further themes, or collapsed into others (i.e. combined) (Silverman, 2011). For example, it was found that the contributions of educational systems could be collapsed into „off the job factors“ that affects the retention and recruitment of medical laboratory specialists in South Africa. Additionally, themes here were organised according to their relevance and appropriateness. It was found that some of the data coded into themes did not actually form relevant themes, because there was either not enough data to support these ideas, these ideas were irrelevant to the study, or the data was extensively diverse. In these cases, these themes have been removed from analysis (Silverman, 2011).

Once the validity of themes was obtained, all data obtained in this study was re-read. The reason behind re-reading data is to search for additional data that could fit the final category of themes that have been formulated (Silverman, 2011). At the end of this phase, this study had a fairly good idea of what the themes are, and how these themes should be organised when reporting the results of the study.

5) Defining and Naming Themes

Phase five involved the redefining of themes that have emerged. Although the validity of themes was obtained in phase four, researchers are required to re-analyse these themes to ensure that they are actually relevant to the study. This entails searching for the essence of each theme as well as investigating the aspects that each theme covers (Silverman, 2011). The essence of themes in this thesis was achieved through a written detailed analysis of each theme which included the areas that each theme covers, as well as how it contributes to the overall research question of this study (i.e. what are the factors affecting the retention and recruitment of medical laboratory specialists in South Africa) (Silverman, 2011). By understanding aspects covered by themes and their contributions to the overall study, it was possible to generate appropriate names for each theme. Additionally, analysing the aspects of each theme also identified whether themes contained sub-categories or sub-themes. For example, off-the job factors were broken down into the following categories: crime, service delivery, exposure, employability of children, age, race.

6) Analysis

Phase five reviewed and refined the themes that emerged in the data collected in this study and provided a set of fully-worked out themes. Phase six involves utilizing these themes to write up a final report of the study. There are two ways of writing up a report using a thematic analysis. The first is to provide a detailed account of a particular aspect or theme. The second is to provide a rich description of the data collected through the provision of a number of themes (Silverman, 2011). The use of this thematic analysis occurs in studies that are considered to be under-researched areas. This study utilised the second form of thematic analysis for two reasons. The first being is that the area being studied is under researched and because this study provides one the first sociological analysis in the field of medical laboratory specialists. Secondly, this study wished to maintain a rich description of the factors that affect the retention and recruitment of medical laboratory specialists (Silverman, 2011). This was achieved through a detailed explanation of how and why these factors affect the recruitment of medical laboratory specialists, as well as the consequences of these factors on South Africa's healthcare system.

The final set of themes that have been generated provided for concise, non-repetitive, coherent, and detailed account of the data collected in this study. The organisation of data into themes allowed for each aspect of data to be individually reported (Silverman, 2011).

An advantage of thematic analysis in this study was its degree of flexibility. Unlike other data analysis methods, it is not bound by a pre-existing theoretical foundation or framework. It is rather, a more essentialist and realist method of data analysis, implying that it focuses on deriving at themes that report the experiences, significance, and realities of participants (Silverman, 2011). The themes identified in this study, were experiences and realities of participants that constitute as factors affecting the retention and recruitment of medical laboratory specialists in South Africa. A thematic analysis allowed for a careful organisation of these factors, as well as a comprehensive comparison and emphasis of participants responses with other data sources used in this thesis.

Analysing data according to themes and categories has proven to be an effective way of managing and interpreting the data collected in order to better understand the phenomena under

study. By categorising the data collected in this study into themes, the factors were understood with greater clarity (Silverman, 2011). Apart from being able to derive at the factors, this advantage of using a thematic analysis provided for a better understanding of „why“ these are factors. Recurring themes found in this study implied the extent of the role that each factor played in the retention and recruitment of medical laboratory specialists in South Africa. In addition, a thematic analysis provided for a more holistic view of the phenomena under study. Apart from deriving at the factors, it also allowed for a detailed account of the implications that the shortage of medical laboratory specialists have on South Africa’s healthcare system.

4.9 LIMITATIONS OF PROJECT

Qualitative studies along with their advantages contain many disadvantages. Many of these disadvantages were found to produce limitations within this study. Below is a list of the limitations experienced within this study, as well as the manner in which this study overcame some of these limitations:

1) Qualitative studies often depart from their original research objectives according to the changing nature of the context of data collected (Neuman, 2009). An initial objective of this study was to assess the effectiveness of the current human resource strategies in retaining and recruiting medical laboratory specialists. Given the lack of participation from the National Health Laboratory Service, this study was not able to determine whether there are any formal human resource strategies for these specialists. This is because the NHLS is responsible for the human resources of all medical laboratory specialists. This limitation resulted in departing from the objective of this study. Instead of investigating the human resource strategies, this study now focused on assessing the factors that affect the retention and recruitment of medical laboratory specialists in South Africa.

2) Another limitation of this project that resulted in changing the research objective concerning the human resource strategies available to medical laboratory specialists was the lack of participation from certain populations. The National Health Laboratory Service is the organization responsible for the human resources of all healthcare professionals in South Africa. Despite repeatedly approaching stakeholders and other personnel from this organization, there has been no participation from members of this organization, for reasons that are unknown. This

has exacerbated the difficulty to assess why there are no actual human resource strategies available to retain and recruit medical laboratory specialists in South Africa. Additionally, access to a few medical laboratory specialists was also problematic because some of these specialists also served as stakeholders in the National Health Laboratory Service. For example, my findings suggest that there are only three registered virologists in KwaZulu-Natal. Of this, only two were interviewed. The third was unable to partake in this study because he served as a stakeholder for the National Health Laboratory Service. This also concurs with a critique of qualitative studies which suggests that certain subjects may hamper the outcome of qualitative studies because they are influenced previously, or by other parties.

3) Qualitative data is often accused of being non projectable or non-generalisable. Reason being is that sample sizes in qualitative studies are not large enough to make findings generalisable. Whilst this study included a small population sample, the results obtained from participants are generalisable because this thesis deals with certain populations that are required to be representatives of their own populations (Neuman, 2009). Qualitative researchers assert that within qualitative studies, partial representation is achievable within similar groups. If the participants of the study belong to specific groups under study then they may be representatives of these groups (Neuman, 2009).

In addition, the use of small sample sizes is advantageous when examining a situation in depth from many perspectives, whereas if larger sample sizes were used then they would be inconsequential (Bernard & Ryan, 2010). The goal of this study was to focus on a selected phenomenon (i.e. the retention and recruitment of medical laboratory specialists in South Africa), and the use of small sample sizes have produced and allowed for a more in-depth and personal understanding of the factors that affect this.

4) Qualitative studies are categorised as being subjective due to the reliance of the subjective personal experiences of participants. Whilst the subjectivity of results gathered from participants may be true, this limitation has been overcome through the use of triangulation as a method of validity (Welman; Kruger; Mitchell, 2009). With triangulation, the data gathered from

participants are cross referenced and cross examined with various other sources of information (i.e. research: books, journals, articles; theories; and field observation).

5) An advantage of using semi-structured (i.e. open ended) interviews in this study was because this method of interviewing is informal and less intrusive, which assist in building trust between researcher and participant. However, critiques of qualitative research suggest that building trust with participants is not always achieved due to the time it takes to build this trust. They believe that because open ended interviews involve short term contact with participants, participants are not given sufficient time to gain trust in researchers, which facilitates their failure to be completely honest and fully represent themselves and the population under study (Hennink; Hutter & Bailey, 2011). However, this was not found to be a limitation of this study. Participants in this study showed their trust in this research because they were aware of the recognition this research aims to create in their occupations. Their knowledge of the lack of sociological analysis and research into the areas of this study gave them the confidence to partake in this study to their optimal capability. In fact, it was through this awareness did they personify the advantage of qualitative studies which is to evoke responses that are unanticipated by the researcher. Through the recognition given to their specialities, they were unhesitant to share valuable information on areas that were not investigated during interviews.

6) The use of open-ended interviews gave participants the freedom to fully express themselves in a manner they felt comfortable with. However, the problem with using open-ended interviews was that the volume of data collected was large, which made data analysis and interpretation time consuming (Hennink; Hutter & Bailey, 2011). Apart from the large volume of data, it was also found that a lot of the data collected from participants were irrelevant, facilitating the difficulty in organizing and interpreting results.

Interviews and access to participants were also time-consuming in many instances. The sample population of this study consist of virologists and anatomical pathologists, which are super specialists with unpredictable schedules. For example, these specialists travel nationally frequently and could also be called out at any time of the day to go into surgery immediately. This has often resulted in the cancellation of interviews, as well as difficulties in reaching these

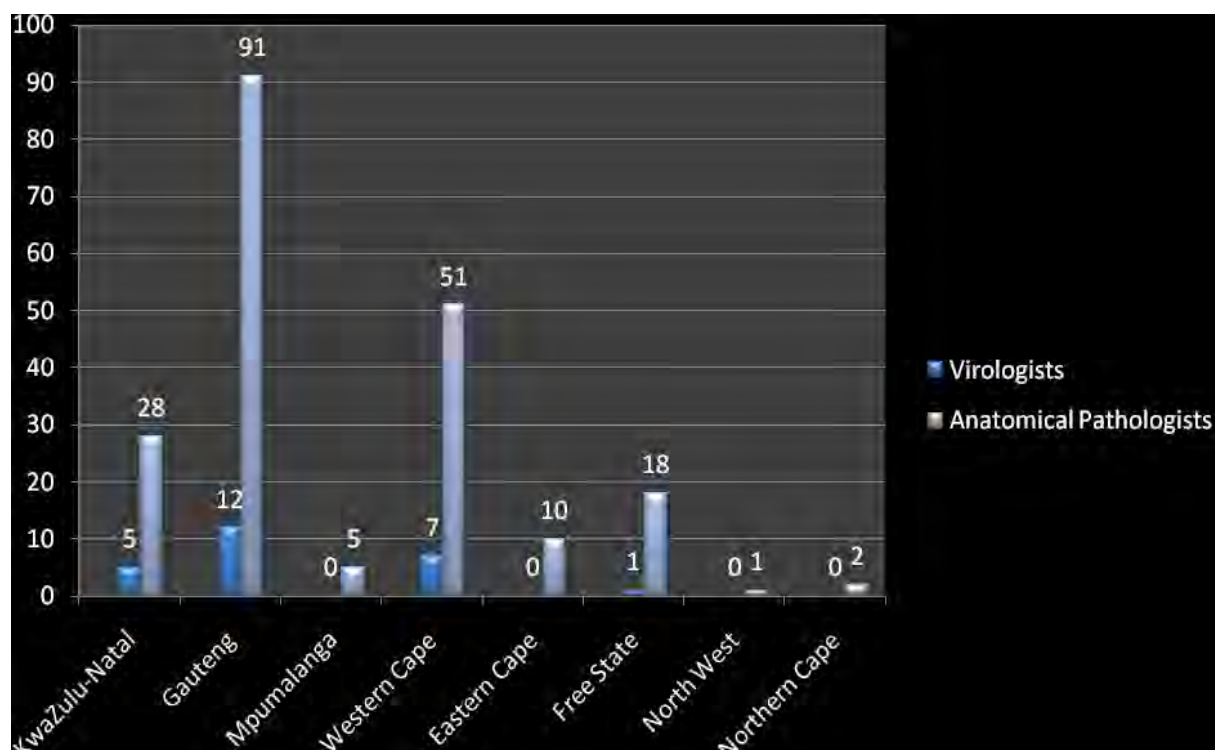
specialists. In other instances, interviews had to be adjourned because participants had to attend to employment duties such as phone calls from clinicians awaiting results from these specialists, meetings or surgery.

7) This thesis is a pioneering study of the medical laboratory specialties of South Africa, which has an intention of pursuing further research. It is the first qualitative study conducted on this topic in South Africa, and Africa on a whole concerning the labour market for medical laboratory specialists. However, qualitative studies are sometimes difficult to replicate or pursue in the future, because future researchers may not gain access to the same or similar subjects in their study (Hennink; Hutter & Bailey, 2011). Additionally, if other participants or subjects are used then the results of that study may differ from this. This thesis however, overcame this limitation because it dealt with subjects that are not part of a rare population. The participants of this study are healthcare personnel that can be found in many healthcare systems globally. Whilst accessing a large population of these personnel may be problematic due to their small numbers in KwaZulu-Natal for example, there will always be some kind of access to these personnel (i.e. anatomical pathologists and virologists).

8) The final limitation of this study was the inability to conduct a national study. The lack of funding, feasibility issues, and time (i.e. time limitation of a year because I am doing a masters degree in a year) limits this study to KwaZulu-Natal. This study has obtained funding from the Department of Science and Technology, however, this funding was not sufficient enough to pursue a national study. The grant number of this funding is 75593. The outcome of this was a reliance on the small sample population sizes of anatomical pathologists and virologists in KwaZulu-Natal. Other provinces such as Gauteng contain more than double of these specialists than KwaZulu-Natal does. However, access to these participants was unachievable due to inability to conduct a national study. Additionally, these specialists (i.e. anatomical pathologists and virologists) are involved in jobs that are significantly demanding. As a result, access to national populations was limited because specialists did not respond to emails or receive calls, due to their demanding jobs. However, this study is an exploratory study of KwaZulu-Natal, therefore results from this study would be extended and applied nationally. Results from the

KwaZulu-Natal populations will be generalised to the national population of medical laboratory specialists. Below is a graph depicting the national statistics of these specialists.

Figure 4.7: Anatomical Pathologists and Virologists by Province



4.10 ETHICAL CONSIDERATIONS

Ethical issues present themselves in any form of research, regardless of the research approaches taken by investigators. The issues occurring in qualitative research are far more subtle than issues that arise in quantitative research, but these issues however can still be very physically, psychologically, and emotionally damaging for participants (Matthews & Ross, 2010). Social scientists do not have a right to invade the privacy of participants or subjects. For this reason, researchers need to ensure that appropriate ethical principles are applied in their research to prevent the violation and ensure the protection of participants (Matthews & Ross, 2010). This study had come across many ethical issues that needed to be taken into consideration. There is no single or standard set of ethical standards that can be developed and applied to all qualitative

research, because every qualitative research project involves different situations which require ethical standards unique to each research (Matthews & Ross, 2010). Below are the ethical standards that have been applied in this study:

1) Consent:

The first ethical issue that needs to be considered in research is informed consent. Researchers are required to obtain informed consent from participants. In order to obtain this consent, researchers need to ensure that participants are informed about the purpose and nature of the study, as well as the potential risks and benefits that could occur from participating in the research study (Christensen, 2011). Participants in this study were well informed about the nature and objective of this study through a written document (i.e. informed consent form), as well as verbally (i.e. in the introduction of interviews). Additionally, they have been informed that there are no risks or major benefits from partaking in this study. Concerning benefits, they were made aware that the only potential benefit of this study was to give their specialties recognition which could inspire future research in their fields.

Participants were also made aware of the nature of the questions that will arise in interviews. They were aware they had a right to withdraw from the interview at any time and were not obligated to answer questions in the interview. Informed consent allowed participants to exercise these rights which resulted in them obtaining autonomy in this research study (Christensen, 2011). Access to participants did not entail permission from gate-keepers; therefore no efforts were made to obtain informed permission for the research from authorities and gate-keepers.

2) Confidentiality:

A major responsibility of researchers is to ensure the protection of participants by providing confidentiality. Confidentiality involves researchers abstaining from providing or reporting on private data that identifies participants. Qualitative studies gather large amounts of data from participants that are personal. In this study, confidentiality has been guaranteed through providing anonymity (i.e. to not record or mention participants names in the report) (Hennink; Hutter & Bailey, 2011). Participants were given the option to request whether they wish to keep their identities from being revealed or not. This option was made available in the informed

consent form. Confidentiality provided the ability to minimize or eradicate any harm that could be caused to participants. In some instances, participants chose not to remain anonymous. This allowed them to maintain the ownership and the meaning of the data that they shared (Hennink; Hutter & Bailey, 2011). Confidentiality in this study was provided through the use of pseudonyms. In addition, research data will be kept at the university for the duration of the research project in secure storage, and will be disposed of a year after the completion of the research study.

3) Exploitation, Inconvenience and Opportunity cost:

Exploitation in research occurs through power imbalances in the relationship between researchers and participants. These power relationships often result in the exploitation of participants by: pressurising them to partake in study, asking sensitive questions, and prolonging interviews (Welman; Kruger; Mitchell, 2009). Exploitation in this study was avoided by informing participants that they have no obligation to partake in the study. Concerning sensitivity, personal or sensitive topics and questions were avoided to ensure that participants felt comfortable during interviews.

The inconvenience and opportunity cost bared by participants in qualitative research is often under estimated. Qualitative research involves in-depth interviews that could last well over an hour, and could require participants to travel to a research centre or an alternate place conducive to the research (Welman; Kruger; Mitchell, 2009). However, participants were made aware of the duration of the interviews prior to the commencement of interviews. This study catered for the demanding schedules of participants by allowing them to request a convenient time and location to conduct the interview. Majority of the interviews did not require them to bear any travel expenses and were conducted at their workplaces. Additionally, they were asked whether the time duration of interviews (i.e. an hour) was suitable, and if not, then the duration of interviews were altered to accommodate them.

4) Funding:

This study was partially funded by The Department of Science and Technology. They were no ethical issues arising from this funding however, because there were no obligations or conditions

imposed by the department. The funding did not affect the design or outcome of this thesis, because there were no requisites to the funding.

5) Reciprocity:

Qualitative research relies on the subjective experiences and life experiences of participants. Considering that the primary source of information for this study was participants, reciprocity was considered to be an ethical practice. Reciprocity in research involves the indebtedness of researchers to participants. Reciprocity may involve: allowing participants to assist in the study, gifts, or providing feedback for the study (Welman; Kruger; Mitchell, 2009). This study reciprocated the participation of subjects by promising feedback on the results of this study. Many participants requested feedback of results on the completion of this study. This will be handled by distributing a research report at the end of the study to these individuals.

4.11 CONCLUSION

This chapter has discussed the research methods adopted in this study. Each research study possesses a unique nature, therefore requiring specific research methods. To recap, this study is a qualitative case study which used purposive sampling to select participants. Concerning data collection, semi-structured interviews were utilized as an instrument, in which eighteen face-to-face interviews were conducted with participants. Additionally, whilst there are a number of data analysis techniques that can be used in research, this study utilizes a thematic analysis. Due to the qualitative nature of this study, large amounts of detailed and rich data were collected through semi-structured interviews and field notes. In order for the large amount of data to be broken down into major themes and categories that represent the factors affecting the retention and recruitment of medical laboratory specialists, a thematic analysis was the most suitable data analysis technique. In addition, there were methods adopted to ensure the validity of data (i.e. method of triangulation) and that ethical issues were considered and addressed. These methods allowed this study to best achieve its objective, which was to assess the factors affecting the retention and recruitment of medical laboratory specialists in South Africa.

CHAPTER 5

FACTORS AFFECTING THE RETENTION AND RECRUITMENT OF SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS

The aim of this chapter is to discuss the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. By factors, I am referring to the influences behind the shortage of medical laboratory specialists in South Africa (i.e. reasons that facilitate the failure for the country to successfully retain and recruit its specialists). However, before assessing these factors, it is firstly important to provide evidence for the shortage of medical laboratory specialists in South Africa, as well as to provide the consequences that this shortage has on the country's healthcare system. Therefore, this chapter is broken down into two parts. The first part assesses the shortage of medical laboratory specialists in South Africa and the consequences of this shortage. Providing evidence for the shortage and the consequences of this shortage provides a rationale for this study. By understanding that South Africa does experience a shortage of medical laboratory specialists, and that the shortage does have negative implications on the country's healthcare system, it becomes important to understand the factors that result in the shortage. The second part of this chapter does this by assessing the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. These factors provide explanations for the high levels of emigration of South African medical laboratory specialists, and for the failure of the country to successfully recruit new medical graduates into medical laboratory specialities.

5.1 THE SHORTAGE OF MEDICAL LABORATORY SPECIALISTS AND ITS CONSEQUENCES

The aim of this section is to highlight the shortage of anatomical pathologists and virologists in KwaZulu-Natal, and the consequences of the shortage. By doing so, this section provides a rationale for assessing the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. Whilst this study will assess the factors affecting the retention and recruitment of these specialists, the importance of assessing these factors can only be realised through an examination of the shortage as well as the consequences of the shortage on South

Africa. Through understanding that there is a shortage, and the impacts that this shortage has on the country's healthcare system, South Africa as a country would realise the need to understand what the causes behind the shortage are. This would allow the country to work towards the development of effective strategies to retain and recruit its specialists. Whilst there are no official statistics of the actual number of medical laboratory specialists that have emigrated from South Africa, this section will indicate the shortage through assessing the current number of anatomical pathologists and virologists practicing in KwaZulu-Natal, and whether these numbers are sufficient in providing effective and efficient laboratory services.

5.1.1 SHORTAGE OF MEDICAL LABORATORY SPECIALISTS

The literature outlined in chapters two and three of this thesis indicates that medical laboratory specialists are neglected or absent in the sociology of health, and the sociology of work. Therefore, concerning the shortage, there is negligible statistics or research concerning the actual number of medical laboratory specialists practising in KwaZulu-Natal (or South Africa on a whole), neither are there statistics of the shortage or number of specialists needed. The only viable statistics available were found in a study conducted by Hale (2009) which prevailed that there are 160 anatomical pathologists registered in South Africa, with 50 of them labouring in the public sector. Considering that the public sector in South Africa services over 85% of the country's population, he found that 30% of these specialists situated in the public sector signifies a drastic shortage of anatomical pathologists in South Africa. He added there is one pathologist for every million citizens (Hale, 2009). Whilst his research indicates the number of anatomical pathologists labouring in South Africa, he fails to provide a provincial indication showing the number of pathologists labouring and the number needed in KwaZulu-Natal, for example. In addition, he also fails to provide actual evidence of the shortage of these specialists. This section overcomes this by providing statistics for the actual number of anatomical pathologists and virologists in KwaZulu-Natal, as well as evidence to the shortage of these specialists. Additionally, this section provides an indication of the number of additional medical laboratory specialists needed to overcome the shortage.

5.1.1.1 Shortage: Anatomical Pathologists

Concerning anatomical pathologists, it has been deduced that there is an acute shortage of these specialists in KwaZulu-Natal and South Africa on whole. Statistics prevail that KwaZulu-Natal has 26 anatomical pathologists (HPCSA, 2011). However, findings suggest that there are a maximum of 23 pathologists servicing the entire province's population of 10.6 million people. This means that there is one pathologist per 460, 589 people in KwaZulu-Natal (approximately 1.5 per million of population). The anatomical pathologist: patient ratio is certainly inadequate in providing effective and efficient pathology services in KwaZulu-Natal. Respondents of this study assert that for the province to sufficiently service its population the province needs to graduate double the number of anatomical pathologists that are currently graduating. In South Africa as a whole, there is an average of four or five anatomical pathologists graduating each year (Interviews 2011, Dr Suraj & Dr Rampersad). With regards to KwaZulu-Natal, an anatomical pathologist interviewed in this study stated that in 2006, two anatomical pathologists qualified in KwaZulu-Natal; in 2007 there were no graduates; in 2008 and 2009 one qualified each year; and in 2010, two qualified (Interviews 2011, Dr Ndolvu). In 2011, the Journal of the College of Medicine of South Africa shows that four anatomical pathologists have qualified in South Africa as a whole. From the four, three have graduated in KwaZulu-Natal (Transactions, 2011: 11). However, as noted, for the province and country at large to successfully provide efficient pathological services to its population, it requires double the amount of anatomical pathologists graduating yearly so that the number of anatomical pathologists practising in the country would be suffice in servicing the country's population (Interviews 2011, Dr Maharaj & Dr Suraj).

The international labour market for medical laboratory specialists plays a significant role in the shortage of these specialists in South Africa. The country loses a large number of anatomical pathologists and virologists through the migration of these specialists to other countries. To elaborate on the role that the international labour market plays in the shortage of medical laboratory specialists in South Africa, a participant of this study states:

"It (i.e. the international labour market) definitely plays a role in that we have certainly lost good quantity, good anatomical pathologist to the overseas market. Most people have emigrated either to the UK, Canada, Australia, and New Zealand. Those are the big draw cards."(Interviews 2011, Dr Watkins)

Another participant stated:

“You know there was always a...in fact if you look at the training posts, they are over filled, and its very difficult to get a post to train. So there is no shortage in terms of the number of guys going into pathology. That is not the problem. The problem is a significant number that come out, emigrate.”(Interviews 2011, Dr Van Vuuren)

He added that if we were able to gather statistics over the past five years on the number of anatomical pathologists that have graduated and their whereabouts, we will find that a significant number, in fact most of these graduates have emigrated. Whilst there are no official statistics or records indicating the actual number of anatomical pathologists that KwaZulu-Natal has lost through migration, responses from participants provide an indication of the extent of migration. For example, an anatomical pathologist from a private laboratory in KwaZulu-Natal stated that four of her colleagues have migrated abroad (Interviews 2011, Dr Chetty). Another anatomical pathologist also situated in a private laboratory knows of fifteen anatomical pathologists that have migrated in the course of his career (Interviews 2011, Dr Aniruth). Whilst these are mere examples, they certainly indicate the extent of emigration of anatomical pathologists from KwaZulu-Natal. These two examples alone sum up to nineteen, which is very close to the actual number of anatomical pathologists currently practising in KwaZulu-Natal.

The largest problem that South Africa faces concerning anatomical pathology and most laboratory disciplines, is the shortage of laboratory specialists. The shortage of medical laboratory specialists, particularly anatomical pathologists is not a problem that is confined to KwaZulu-Natal, but it a problem that the country as a whole faces (Interviews 2011, Dr Maharaj). The shortage of anatomical pathologists has created a significant demand for these specialists, in both public and private healthcare laboratories in South Africa (Interviews 2011, Dr Maharaj). A CEO of a KwaZulu-Natal private laboratory indicated that laboratories across South Africa desperately seek anatomical pathologists, but there are vacant posts that they can just not fill due to the poor availability of these specialists. He added:

“There are vacant positions in the public service and the private service. Now many branches of medicine where the private sector will tell you we need more specialists. Usually like in urban areas it is kind of saturated but pathology especially

histopathology which is anatomical pathology there is definitely an opportunity. Right now if there are two histopaths (i.e. anatomical pathologists) looking for a job I will employ them tomorrow but we just can't find them. That is the demand that is available now." (Interviews 2011, Dr Maharaj)

Therefore, whilst there are no official statistics regarding the shortage of anatomical pathologists in KwaZulu-Natal, responses from the province's anatomical pathologists suggest that the province and country at large experiences an acute shortage in both private and public laboratories. For the country to provide effective laboratory services, it needs to double the number of anatomical pathologists that it currently has.

5.1.1.2 Shortage: Virologists

A virologist and two virology registrars interviewed suggest that KwaZulu-Natal and South Africa as a whole does not *currently* have a shortage of virologists. However, they added that this isn't a positive factor that the country should be proud of. This is because the balance in virology is only because virologists are not being fully utilised (Interviews 2011, Dr. Dangor). Therefore, in the current situation, they are only required to provide a consultative service focused around service delivery work which implies that the small KwaZulu-Natal population of three virologists suffice in *only* servicing the province's population. However, virologists should not only be defined according to specialists that provide a consultative service. They should also be defined according to their research capacity, and academic involvement. If virologists were to be fully utilised in which their roles would expand into more research and academia, then the province and country at large would experience a significant shortage (Interviews 2011, Dr. Dangor). A KwaZulu-Natal virologist stated:

"In my personal opinion I don't think that we are being utilised sufficiently. So if our role changes, in other words if we are not purely consultative but we are involved more in other research and we are involved in public health initiatives for example then you can find more scope for virologists. So if there is expanding scope then there is expanding need. But in the current way in which we are defined and in which we work I think we have adequate number." (Interviews 2011, Dr. Kazi)

Hence, whilst they may not be a current shortage of virologists, a larger number of virologists are still required in KwaZulu-Natal because the role that these specialists play in healthcare needs to be expanded. This will be further discussed in section 5.2 which assesses the limited role of virologists as a factor affecting the retention and recruitment of medical laboratory specialists (Interviews 2011, Dr. Dangor).

Whilst a few feel that there is currently no shortage of virologists due to the limited role that these specialists play in South African healthcare, another virologist believes that KwaZulu-Natal and South Africa as a whole does have a shortage of virologists regardless of the limited role that these specialists currently play in healthcare. He believes that the expanding HIV/AIDs epidemic itself is an explanation for the shortage of virologists in South Africa. He adds that as the epidemic increases, the demand for virological services increases, requiring a larger number of virologists to service the South African population. The total South African population of 25 virologists is inadequate in servicing the population (Interviews 2011, Dr. Butler). There are currently five registrars training in KwaZulu-Natal. For the province to adequately and effectively service its population, the number of training posts should be doubled, implying that anatomical pathology, virology also requires more than double the number of specialists practising in KwaZulu-Natal. The province currently has three virologists (Interviews 2011, Dr. Butler).

Concerning migration, the international labour market also plays a significant role in the shortage of virologists. An average number of three virologists have migrated abroad (i.e. this equals to the number of virologists in KwaZulu-Natal currently) (Interviews 2011, Dr. Dangor). Therefore,, when assessing the factors affecting the retention and recruitment of medical laboratory specialists, a large part of this will be in relation to the emigration of specialists. Put in another way, a large part of this study assesses the factors that facilitate the emigration of medical laboratory specialists.

5.1.2 CONSEQUENCES

The consequences found within this section directly relate the consequences provided in chapter three. While many of these consequences have already been mentioned in chapter three of this

study, the purpose of this section is to elaborate and provide clarity on the consequences that have already been mentioned. By doing so, this section additionally aims to indicate that the consequences experienced by the South African healthcare system are still prevalent, implying a greater need to retain and recruit the country's medical laboratory specialists. The consequences provided in this section create a need for the awareness of the labour market for South African medical laboratory specialists. By understanding the following grave implications that the shortage of these specialists have on the country's healthcare system helps us understand the crucial need to determine the factors affecting their retention and recruitment so that there can be a step towards developing effective retention and recruitment strategies:

5.1.2.1 Increased Workload

The failure to actively retain and recruit medical laboratory specialists in South Africa has increased the workload of those specialists that have remained in the South African labour market. The failure to retain and recruit specialists implies that the country has lost many specialists through international migration, and the migration out of medical laboratory specialities. This means that a limited number of medical laboratory specialists that have remained behind are required to carry out the workload of those that have left, implying an increase in the workload of South African laboratory specialists (Interviews 2011, Dr Suraj & Dr Nair).

Whilst both, the public and private healthcare sectors in South Africa experience an acute shortage of anatomical pathologists, the consequences felt by the public healthcare sector concerning the shortage are far greater than the private sector. This is because the public healthcare sector in general services approximately 80% of KwaZulu-Natal's population. However, concerning anatomical pathology and virology, public healthcare laboratories service the entire province's population. The public healthcare laboratory however, currently sits at 30% capacity for anatomical pathologists, and has a 70% shortage of these specialists (Interviews 2011, Dr Rampersad). Whilst many may argue that the department has a 300% increase in anatomical pathology consultants (i.e. from two to six) in the past three years, the number is still inadequate to service KwaZulu-Natal's population. The result is that specialists have to work harder to carry out the duties of the specialists that have left in order to provide effective

laboratory services to the population (Interviews 2011, Dr Rampersad). However, the small number of anatomical pathologists in the department still makes it difficult to provide the population with optimal services.

Hence, the department was required to outsource a considerable amount of work to private laboratories in KwaZulu-Natal to manage their duties a little more comfortably. However, private laboratories too have vacant posts for anatomical pathologists and experience significant shortages as well. Therefore, whilst outsourcing work to private laboratories may have lightened the workload of anatomical pathologists situated in the public healthcare sector in KwaZulu-Natal, both these sectors experience significant and unbearable workloads because the province has too few anatomical pathologists servicing its population (Interviews 2011, Dr Rampersad). To elaborate on the increased workload of medical laboratory specialists due to the failure to retain and recruit these specialists in South Africa, an anatomical pathologist elaborated:

“Whereas in private, why do I think there are places available? There are places available because of the shortage of anatomical pathologist there are just, as a whole. There is a lot of work and not enough people to do it and its because have either emigrated or they are not training enough people.” (Interviews 2011, Dr Rampersad)

This directly correlates with the views of Awases, Gbary, Nyoni & Chatora (2004) mentioned in chapter three, who show that the medical laboratory specialists, that remain in a healthcare system experiencing a shortage are burdened with duties, burned-out, and are de-motivated because of workloads. This results in a fewer number of patients being attended to in a specified time (i.e. affects healthcare efficiency) (Awases, Gbary, Nyoni & Chatora, 2004).

5.1.2.2 Effect on laboratory services

The failure to successfully recruit and retain medical laboratory specialists in South Africa also results in the failure to provide effective medical laboratory services in the country. This is due to the reliance of human capital in medical laboratory specialties. In chapter three, it was noted that the South African government implemented substitution policies to assist in overcoming the shortage of healthcare professionals. The intention behind this programme was to provide basic

training to healthcare professionals that are less qualified to provide the services that were once provided by high skilled healthcare professionals (that have left). However, concerning medical laboratory specialities, there are no substitution policies that can assist in overcoming shortages for both, virologists and anatomical pathologists. This is because these disciplines are reliant on the human capital and expertise of these specialists (Interviews 2011, Dr Suraj; Dr Maharaj). There are no machines or less trained healthcare workers that can fulfil the duties of medical laboratory specialists. Whilst Awases, Gbary, Nyoni & Chatora (2004) indicate that the shortage of medical laboratory services affects the quality of healthcare due to less-trained staff being required to perform the duties of specialists that have left, this is not the case for South Africa (Awases, Gbary, Nyoni & Chatora, 2004). This is because the country does not utilise substitution policies to overcome the burdens placed on its healthcare system when it loses medical laboratory specialists. When the country loses its specialists, it does so on a permanent basis because the expertise and duties of these specialists can not be substituted with machines or less skilled staff.

For example, when questioned about the success that substitution policies will have in overcoming the shortage of medical laboratory specialists in South Africa, an anatomical pathologist replied:

“I think for the type of discipline that anatomical pathologist is I don’t think that works. Because anatomical pathologist is about experience because the decisions that you make have a huge impact on your patient and its about experience. And the training is intensive for a reason because its, I think that people who are not in the medical field and who are not doctors themselves don’t have an understanding of anatomical pathologist is so people that are non-medical have a complete misunderstanding of what anatomical pathology is and for you to be a good anatomical pathologist you have to be very experienced you cannot rush the training. Because to put it like basically, you can take two specimens and you have two slides, and they can look almost identical but one is cancer and one isn’t. Right and its experience that will tell you to make that distinction. And you can’t trust that kind of training because that has a huge impact on the patient. So you can’t risk doing that because ultimately all those doctors are dependant on us because the surgeon will

chop off someone's limb because of what I told them. I am the determinant. So how can you rush that training?"(Interviews 2011, Dr Suraj)

This clearly indicates that when South Africa loses its anatomical pathologists and virologists, it loses human capital and the ability to provide effective and accurate laboratory services, on a permanent basis. The above mentioned example signifies that the only viable option for the country to create an effective medical laboratory service is to retain and recruit the country's current medical laboratory specialists. Substitution policies that aim to provide less skilled health workers with basic training in medical laboratory disciplines will prove to be problematic because these specialists can not be replaced with personnel that do not have a holistic understanding and experience of these fields. To elaborate, for South Africa to provide effective and accurate laboratory services, it needs to recruit and retain specialists that have undergone extensive training in medical laboratory disciplines (such as four post-graduate years of training in virology or anatomical pathology). Anatomical pathology and virology differ from other laboratory disciplines due to the reliance on human intervention. This was emphasised by a respondent who said:

"At the end of the day it still has to be interpreted. That is what makes anatomical pathologist different from any other branch of pathology whether a haematologist or a chemical pathologist, it can be redundant. The machine gives you a result, the pathologist's job is to make sure it is correct and makes sense but the actual work is done by the machine. Here you usually have got to interpret it. No machine can interpret the diagnosis. Human input is crucial. In fact even the medical aids recognise because if you look at the way they pay pathology, they pay you for your human input. The way they pay the other disciplines, they pay you more a technical fee. For us they pay you a human fee."(Interviews 2011, Dr Maharaj)

Unlike other disciplines such as chemical pathology and haematology that have machines that analyse millions of test tubes composed of specimens, anatomical pathology and virology are human resource dependant (Interviews 2011, Dr Rampersad & Dr Maharaj).

5.1.2.3 Turn Around Time

An additional significant consequence that the shortage of anatomical pathologists has on South Africa's healthcare system is a delay in the turn around time of patient's results. It has already been derived that the country experiences an acute shortage of these specialists. The result is that patients have to now wait longer periods of time before their results are released (Interviews 2011, Dr Rampersad). As a result, doctors and clinicians treating these patients have to wait longer periods before they can actually forego any form of treatment because there is a delay in the professional results and advice from medical laboratory specialists (i.e. anatomical pathologists and virologists in this case) (Interviews 2011, Dr Suraj; Dr Rampersad). A respondent added:

"And because of the shortage, the turn around time is its takes too long. We release results, it take too long to release results and so doctors have to wait for us before they can act. So waiting times are too long. So even though patients may have cancers which are obviously require a treatment we can't be efficient and offer them the best treatment because there is just a lack of pathologists in the country." (Interviews 2011, Dr Suraj)

The shortage of anatomical pathologists in particular causes a serious delay in the diagnosis of specimens. Each laboratory in KwaZulu-Natal has hundreds of specimens coming in for diagnosis daily; but the province simply does not have the human resource capacity to diagnose these specimens on time. This implies that patients wait longer periods before they attain results from clinicians (Interviews 2011, Dr Rampersad). The prime objective of anatomical pathologists is to diagnose cancers. However, due to the shortage of specialists in KwaZulu-Natal, there is a tremendous delay period in the diagnosis of cancer malignancies. Patients on average wait a period ranging from weeks to months to obtain the results of their tests (Interviews 2011, Dr Maharaj). To exemplify the consequence that the failure to retain and recruit medical laboratory specialists in South Africa, a respondent emphasised:

"Now because the public sector has a shortage of anatomical pathologist there is a big delay of making diagnosis of especially malignancy, because our prime objective is to diagnose cancers. In addition to many other things, but to make a diagnosis of cancer. But if you are a patient going to a public hospital and you have a lump in

your breast, and you need to make that confirmation is it a malignancy or not, a biopsy will be done and it will be sent to your local pathologist. Now because there is a shortage of pathologists it takes weeks for that to be done. In fact it takes months depending on where you are. So that patient, there is a delay in the diagnosis being made and that has many ramifications. The disease could kill that patient before the patient even knows what they have got, I promise you, and there have been delays of up to three months which is unacceptable by any world standards.”(Interviews 2011, Dr Maharaj)

This severely compromises patient health. Majority of the specimens that are diagnosed by anatomical pathologists are specimens from patients with life threatening diseases. The above example indicates this by illustrating that the majority of the anatomical pathologists’ workloads compromise of diagnosing life threatening diseases, such as cancer. However, the delay in the turn around time due to the shortage of anatomical pathologists compromises the health of patients and can often result in deaths. This is because the disease under diagnosis could advance into severe stages that could in fact kill patients in the time that they wait for results to return from laboratories (Interviews 2011, Dr Maharaj). This has been emphasised by Chikanda’s (2006) study which showed that the public sector’s inability to service South Africa’s population means that patients have to wait longer periods before they can actually receive healthcare, which results in many more deaths. Many patients have reported that they have to wait months before they either receive healthcare or obtain their results from tests. (Chikanda, 2006)

In addition, the delay in turn around time also increases the cost of healthcare in South Africa. Patients awaiting results are further burdened with an increase in the cost of healthcare because they will be required to occupy beds in hospitals for longer periods (Interviews 2011, Dr Maharaj). A respondent commenting on the increase in the cost of healthcare stated:

“In the public sector you have to sit and wait for the result and you wait and wait and in the mean time you are occupying a bed, it is costing you money, you are preventing someone else from taking up that bed. So its got major implication and it has taken the authorities very long to realise this. Apart from the fact that is frustrates the other colleagues working there; they don’t know what to do. I will give

you a practical example of that. In Newcastle Ladysmith area, the surgeons and the doctors working in those public hospitals are getting frustrated because they have to wait weeks and weeks for the histology result. They do a procedure and they take a mass out and they don't know the result and they are stuck with the patient."
(Interviews 2011, Dr Maharaj)

This implies that the failure to retain and recruit medical laboratory specialists does not only result in a delay in the turn around time for results. It also compromises patient health with an increased likelihood of it resulting in patient deaths, in addition to increasing the cost of healthcare for patients. The longer periods that patients occupy beds in hospitals for also has consequences on the capacity of South Africa's healthcare system because it prevents other patients from occupying that bed and being treated. Concerning the cost of healthcare, the increased cost of healthcare has further consequences on South Africa's healthcare system. This will be explained below when assessing the inequalities in access to healthcare (Interviews 2011, Dr Maharaj).

5.1.2.4 Inequalities in Access to Healthcare

The failure to retain and recruit medical laboratory specialists in South Africa has resulted in a severe shortage of these specialists, as noted. The shortage implies that the country's healthcare system can not keep up to its healthcare demands by providing effective and efficient healthcare services. The above mentioned consequence signifying a delay in patient turn around time illustrates this. This however, has also facilitated the inequalities in South Africa concerning access to qualitative, effective and efficient healthcare. Access to effective and efficient laboratory services is only available to those that can afford it. It has been noted that due to the delay in the turn around time of patients, many patients are paying private laboratories to speed up the time it takes to produce their results (Interviews 2011, Dr Maharaj). It has been noted that private laboratories allow patients to attain results and treatment within an average of four days. These patients experience faster turn around times. However, the large majority of South Africans are excluded from efficient laboratory services because they can not afford private laboratory services. The health care they receive are from public sectors that experience significant delays in releasing results. Patients receiving laboratory services in public laboratories

can wait anything between a week and a few months for results (Interviews 2011, Dr Aniruth). Whilst public laboratories outsource a large portion of their work to private laboratories in KwaZulu-Natal, there is still a tremendous waiting period. A chief anatomical pathologist in KwaZulu-Natal explains this:

“It definitely adds to the inequalities, it adds to your tab because there are some patients, I can give you many examples because we have experienced this, they go to public hospital and they have a procedure done and because they have to wait and wait and they have been compromised, they will insist that the work be sent to the private sector and they pay for it out of their own pocket just so that they get the result. So you are right, if you have got the money you can facilitate it and speed up, whether you are in the public sector or private sector you still have that option. But the indigent patient has nothing. He is left with a second quality service.”(Interviews 2011, Dr Maharaj)

The effects that the shortage of medical laboratory specialists has on access to equitable healthcare has already been mentioned in chapter three by Awases, Gbary, Nyoni & Chatora (2004). For these authors, the gap between the rich and the poor in South Africa, results in qualitative healthcare being provided to those who can afford it. The poor on the other hand would be compromised due to their reliance on public health laboratories that are over burdened due the shortage of healthcare professionals (Awases, Gbary, Nyoni & Chatora, 2004).

5.1.2.5 Ageing Laboratory Workforce

Downey (2010) emphasised that a significant consequence that the shortage of healthcare professionals has on a country’s healthcare system is an ageing workforce. His study showed that due to the global extraction of young medical laboratory specialists from developing countries by developed countries, the healthcare systems of developing countries are left with rapid ageing populations for medical laboratory specialists (Downey, 2010). His research also showed that when these professionals retire (i.e. those that are left behind), they compound the shortage of healthcare professionals because healthcare systems can not sufficiently recruit and retain new and young graduates. Therefore, healthcare systems will experience a further shortage due to the retirement of health care professionals, which will ultimately add further strain on a country’s

ability to provide effective and efficient healthcare (Downey, 2010). Whilst his study makes no mention of South Africa's healthcare system, responses from participants of this study clearly indicate that a rapid ageing laboratory workforce is a consequence that the country faces due to the failure to attract young medical graduates into medical laboratory disciplines. The failure to recruit and retain new medical graduates into laboratory disciplines implies that the country is left with a laboratory workforce that is near retirement age. Therefore,, a rapid ageing laboratory workforce refers to a laboratory workforce that is near retirement age.

The shortage of anatomical pathologists and virologists in KwaZulu-Natal is largely due to the failure to attract new and young graduates into these disciplines. This has resulted in rapid ageing populations of these specialists. The province's (and country's at large) failure to attract new and young graduates to these medical laboratory specialities, implies that it suffers from a rapid ageing population. Young anatomical pathologists and virologists are known to be mobile personnel with an intention to migrate out of South Africa (Interviews 2011, Dr Suraj & Dr Nair). This implies that South Africa is left with an aged medical laboratory workforce. In KwaZulu-Natal, it was noted that over 80% of anatomical pathologists and virologists are between 43 and 55 years of age (Interviews 2011, Dr Chetty). Besides this implying that the province has an aged laboratory workforce, it also implies that the future of laboratory services in KwaZulu-Natal and South Africa at large faces a severe threat.

The future of effective and sustainable laboratory services in the country depends on the ability to successfully recruit and retain young medical laboratory graduates in South Africa's healthcare system. However, the failure to attract these young candidates, along with the country's aged medical laboratory workforce, implicates that we can predict that the shortage of these specialists will be further exacerbated in the near future (Interviews 2011, Dr Watkins). This is because majority of the current medical laboratory workforce are near retirement age, and the country will fail to attract young medical laboratory specialists to replace the positions of these specialists when they retire (Interviews 2011, Dr Suraj). For example, an anatomical pathologist practicing in a private laboratory in KwaZulu-Natal indicated that the rapid ageing population for their speciality is an increasing concern. The laboratory had approximately seven anatomical pathologists in total a few years ago (Interviews 2011, Dr Chetty). Of the seven, one

of the senior anatomical pathologists has already retired, and an additional 2 plan on retiring in the next 4 years. However, the laboratory will find it impossible to replace these specialists because they are already experiencing difficulties in filling current vacant positions. Therefore, the retirement of another two specialists will only facilitate the shortage (Interviews 2011, Dr Chetty). To elaborate, another participant stated:

“Absolutely we face a very serious problem in South Africa regarding anatomical pathologists. The majority of anatomical pathologist posts are held by people over the age of fifty and especially in the state, you will actually find that a large percentage of the posts are being held by people who are pre-retirement or post retirement and are on a year-by-year contractual basis. And so when those people are no longer able to work or retire fully, we are going to face a serious shortage, because we are not getting many younger up and coming pathologists coming through, not enough to fill the posts and we are not retaining those that we can. So yes there is going to be a serious problem.”(Interviews 2011, Dr Watkins)

The shortage of medical laboratory specialists and the consequences of the shortage discussed in this section prevails the need for South Africa to effectively retain and recruit its medical laboratory specialists. The purpose of outlining the shortage and the grave implications that the shortage has was to emphasise the rationale behind this study, which it ultimately to make a contribution towards laboratory services and healthcare in South Africa. Understanding the shortage and the effects of the shortage signify the importance of understanding the labour market for South African medical laboratory specialists, so that these specialists can be effectively recruited and retained in South Africa. This study does so by deriving a,t and analysing the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. The following section assesses these factors.

5.2 FACTORS AFFECTING THE RETENTION AND RECRUITMENT OF SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS

The aim of this section is to discuss the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. As indicated in the previous section, there is a significant shortage of medical laboratory specialists in South Africa. Additionally, the consequences provided indicate the seriousness of the shortage by outlining the negative implications that the shortage has on South Africa's healthcare system. These two points provide a rationale and need for this study and section in particular, by emphasising the importance in understanding the reasons behind the shortage. The section does this, by assessing the factors that affect the retention and recruitment of medical laboratory specialists in South Africa. This will be achieved through an examination of the labour market for anatomical pathologists and virologists in KwaZulu-Natal. The section is broken down into two parts. The first part assesses the economic factors, whilst the second part assesses the social and political factors affecting the retention and recruitment of anatomical pathologists and virologists in KwaZulu-Natal. The intention behind this will be better understood in the chapter six which will utilize the human relations, human capital and job embeddedness theories to indicate and explain whether economic or social and political factors play a larger role in the retention and recruitment of these specialists, and why they do.

Additionally, the factors found in this study correlate with the factors mentioned in chapter three that affect the retention and recruitment of South African healthcare professionals in general. This is because medical laboratory specialists, as mentioned, are a part to the global labour market for South African healthcare professionals. Hence, the factors that affect the retention and recruitment of medical laboratory specialists in South Africa, are similar to those factors that affect the retention and recruitment of South African healthcare professionals in general. However, certain variations will be found due to the uniqueness of laboratory disciplines. By differences, I am implying that factors such as exposure and limited scope for example, that do not affect healthcare professionals in general, will be cited as factors that affect medical laboratory specialists. In addition, other differences will include the extent to which the factors mentioned below affect the retention and recruitment of medical laboratory specialists compared to other South African healthcare professionals. For example, chapter two showed that salaries

play a large role in the failure to retain South African doctors due to the availability of higher salaries abroad. However, salaries or financial remuneration in general is a factor that has a limited impact on the ability to retain medical laboratory specialists because these specialists are highly remunerated in South Africa. This however, will be made clearer in chapter six which explains the significance of these factors through the use of the human relations, human capital and job embeddedness theories. This section however, examines the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. These factors are listed below according to (1) economic and (2) social and political factors.

5.2.1 ECONOMIC FACTORS

5.2.1.1 Salaries

Salaries were noted as the only economic factor affecting the retention and recruitment of medical laboratory specialists in South Africa. The extent to which this constitutes as a factor however, is rather limited implying that it does not severely affect the shortage of medical laboratory specialists in South Africa.

Some may believe that salaries largely facilitates the outflow of medical laboratory specialists due to a trend whereby medical laboratory specialists in South Africa work on a „fee for service“ system. This system refers to the price of laboratory services being controlled by external institutions, such as medical aids for example. Medical aids approach laboratories in KwaZulu-Natal with a number of specimens that they require anatomical pathologists and virologists to report on. However, along with these specimens, medical aids demand that laboratories render their services at a fixed fee (R200 a specimen for example) (Interviews 2011, Dr Van Vuuren). The result of this will be that the overall income or salary of anatomical pathologists and virologists is controlled by medical aids who allocate fixed amounts of funding towards medical laboratory services. The exit price of pathology services are controlled by medical aids, and hampers the ability for pathologists (i.e. pathologists including both, virologists and anatomical pathologists) to generate greater profits (Interviews 2011, Dr Van Vuuren).

Nevertheless, both anatomical pathologists and virologists in KwaZulu-Natal indicate that they are content with their current income and would not migrate out of South Africa or the specialty

for a higher income. For example, the basic monthly net salary across all medical laboratory specialists is approximately R 50 000. This salary however, can range up to R100 000 net a month, for anatomical pathologists in the public healthcare sector, depending on the overtime worked by these individuals. This already implies that salary is not a factor affecting the retention and recruitment of medical laboratory specialists in South Africa. Both, virologists and anatomical pathologists are sufficiently remunerated in KwaZulu-Natal, implying that the shortage of these specialists in South Africa is not attributed to low salaries. In addition, recently there have been attempts to retain these specialists in KwaZulu-Natal which included salary increases (Interviews 2011, Dr Van Vuuren).

South Africa has realised the scarcity of anatomical pathologists in particular, and the need to retain these specialists over the past few years. Despite failures in their attempts, there has still been a retention strategy that attempts to motivate anatomical pathologists to remain in South Africa through financial rewards. Financial rewards imply that anatomical pathologists are now the highest paid branch or speciality in medicine, and there has also been a „scarce skill allowance“ provided to these specialists as a means of retaining them. An anatomical pathologist commented:

“Ja the recruitment strategies, we had a salary adjustment which included everyone. So the salaries are not an issue, we compare favourably with the department of health.” (Interviews 2011, Dr Rampersad)

In addition, the migration of these specialists does not necessarily co-incide with the notion of a movement to „greener pastures.“ There is a misconception that the migration of medical laboratory specialists, and healthcare professionals from South Africa is a movement to „greener pastures,” that offer better working conditions, such as higher salaries for example. However, findings from respondents, who knew of personal examples where South African pathologists have emigrated, stated that the salaries overseas are not always higher than the South African labour market. This was emphasised by a former South African anatomical pathologist who stated that there is no financial gains for anatomical pathologists migrating out of South Africa. He stated that whilst specialists may earn more abroad due to higher currencies (such as pounds in the United Kingdom); the real wage that specialists earn abroad is actually equivalent to the

salaries that South African anatomical pathologists earned. Additionally, he added that there are instances where South African salaries are even higher than overseas salaries for anatomical pathologists (Interviews 2011, Dr Manderee).

Another anatomical pathologist stated:

“Look I know of a lot of anatomical pathologist that have gone overseas. There...I know of a number who have gone over for socio-economic reasons, for better schooling, I know some who have been affected by crime here in South Africa and decided to emigrate. I know of a good number who have gone to take senior academic posts in institutions overseas. Generally speaking not many of them go for the wages. It is well remunerated in South Africa comparative to the overseas market so pay is often not a determining factor. It is other issues....” (Interviews 2011, Dr Watkins)

The role that salaries plays as a factor in the retention and recruitment of medical laboratory specialists in South Africa is confined to the mobility between public and private laboratories in KwaZulu-Natal. By saying this, I am implying that salaries only determine the mobility of anatomical pathologists between the public and private healthcare sector in KwaZulu-Natal. Approximately eight out of ten anatomical pathologists migrate from public medical laboratories to private laboratories, due to the higher salaries available in private laboratories (Interviews 2011, Dr Maharaj). However, whilst it may be a factor affecting the mobility of these specialists within South Africa, it does not play a large role in the movement of anatomical pathologists out of the country. Therefore, salaries or financial benefits, only plays a role in the retention and recruitment of medical laboratory specialists within the South African labour market (Interviews 2011, Dr Maharaj). Whilst salaries was cited as one of the primary push factors for other South African healthcare professionals, particularly doctors, it was not found to be a major factor affecting the retention of medical laboratory specialists. This is because South African doctors are poorly remunerated compared to doctors in more developed countries. Hence, South African doctors emigrate to better developed countries for higher salaries. For example, chapter two of this thesis showed that a senior doctor working in South Africa would earn approximately \$US 1486, whereas he/ she can earn: \$US 3056 in the US; \$US 2832 in Australia; \$US 2812 in

Canada; and \$US2567 in the UK. This indicates that the salaries earned in more developed countries are almost double the salaries that doctors earn in South Africa (See: Pillay, 2007, HSCPA, 2011). However, anatomical pathologists and medical laboratory specialists on a whole in South Africa are highly remunerated, which means that their salaries can match (if not better) the salaries of anatomical pathologists in many developed countries (Interviews 2011, Dr Watkins).

The same can be said for virologists. A virologist situated in KwaZulu-Natal serves as a personal example of why salaries is not a prime factor affecting the retention and recruitment of medical laboratory specialists in South Africa. Once again, there is often a misconception that the migration of South African healthcare professionals in general, is a move to greener pastures. However, the respondent showed that emigration of medical laboratory specialists in particular is not always a movement to greener pastures (Interviews 2011, Dr. Dangor). He added that when he worked in the United Kingdom for a year, his earnings were pretty much the same as South African salaries. Whilst the currency may be stronger, the actual or real salaries in the United Kingdom for virologists is comparable or similar to the earnings of South African salaries, the increase is negligible. (Interviews 2011, Dr. Dangor)

Therefore, salaries does not constitute as a major factor affecting the recruitment of medical laboratory specialists in South Africa because these specialities are well compensated in the country. In addition, the international labour market does not offer financial gains relatively higher than South Africa. In fact, salaries were actually cited as a factor that retains medical laboratory specialists in South Africa. For example, when questioned the factors that retain medical laboratory specialists in the South African labour market, a virologist replied: *“So its my income obviously and that is why I remain in the job.”* (Interviews 2011, Dr. Butler)

Hence, what emerges from the above quote is that the salaries earned by South African medical laboratory specialists are not a factor that negatively affects the retention and recruitment of these specialists. These specialists are highly remunerated, in both, the public and private healthcare sectors in South Africa.

5.2.2 SOCIAL AND POLITICAL FACTORS

Economic factors (such as salaries) have shown to have a limited impact on the failure to retain and recruit medical laboratory specialists in South Africa. Even though medical laboratory specialists belong to the global labour market for South African healthcare professionals, they, unlike other healthcare professionals who migrate for higher salaries, migrate in response to the poor social and political conditions of South Africa. This is because these specialists are sufficiently remunerated in South Africa; and international salaries are not relatively higher and are in fact sometimes lower than South African salaries. Majority of the respondents of this study indicated that the failure to retain both anatomical pathologists and virologists in South Africa is actually a result of the social and political, rather than the economic factors (such as salaries). A respondent asserted:

“We have lost a lot of good anatomical pathologist to overseas. The main draw cards there are social, or social-economic shall I say as well as to a certain extent academic, improved status and the like. But to say most anatomical pathologist are leaving for either better packages overseas, that is relatively minor. The majority are because they are not happy with the socio-economic conditions in South Africa.”(Interviews 2011, Dr Watkins)

Another stated:

I think it is just the social and political factors in South Africa versus those countries. Those countries offer a better standard of living, better quality of living, security. So I think its not just the discipline itself, I don't think those are the reasons a lot of the doctors leave, I think its just greater socio-economic reasons that any other average South African would choose to leave the country. (Interviews 2011, Dr Suraj)

This section discusses the social and political factors affecting the retention and recruitment of medical laboratory specialists in South Africa.

5.2.2.1 Exposure to Medical Laboratory Disciplines

A pre-dominant non-economic factor that has facilitated the failure to recruit anatomical pathologists in KwaZulu-Natal is the lack of exposure to anatomical pathology through the

changing of the undergraduate medical curriculum. Respondents asserted that previously, when they trained, they studied under a modular system in which anatomical pathology was available as a module in the third year of their undergraduate studies (Interviews 2011, Dr Rampersad). Under the modular curriculum, students were also able to visit and work in laboratories during holidays, which also involved them in research of the field. Due to this, they were exposed to and became familiar with the discipline, and knew it existed as an option to specialise in. Their exposure allowed them to consider anatomical pathology as a field to specialise in, on the completion of their undergraduate studies (Interviews 2011, Dr Aniruth & Dr Manderee). However, the new curriculum that was implemented three years ago consists of a shift from the traditional modular system (Interviews 2011, Dr Rampersad). The curriculum has been shortened so that medical school students can graduate in a shortened period of five years. As a result both, anatomical pathology and virology have been removed as modules.

Medical students graduate with their undergraduate medical degrees and leave medical school without knowing that anatomical pathology is a viable field to specialise in. They do not consider anatomical pathology or virology to be major specialties that are demanded in South Africa (Interviews 2011, Dr Rampersad). When questioned about the factors behind the failure to recruit new graduates into pathology, a former South African anatomical pathologist stated:

“So I blame the curricula, the people who design the curricula in all eight medical schools in this country who alienated pathology. So there needs to be change in that as well. The old didactic or greater exposure of undergraduates to pathology needs to be brought back. That needs to happen otherwise we are just going to become a discipline that doesn’t exist and pathological services are not only going to be outsourced to private but soon to other countries.”

The changing of the modular system in medical school resulted in the anatomical pathology being removed as a module and replaced with other modules that generally cover a holistic range of fields. There is no visual presence of anatomical pathology (Interviews 2011, Dr Manderee). The same scenario applied to virology. Both, virologists and registrars interviewed in this study blamed the removal of virology as a module from the undergraduate degree for the lack of medical graduates entering the field (Interviews 2011, Dr. Essop). Unlike when virology was

previously offered as a module, medical students are now only exposed to certain components of the field. For example, if students were being lectured on the infections of a lung, a microbiologist would be called in to teach them about the pneumonia's of the lung, a physiologist will teach them about the operations of the lung, and a virologist would be slotted in to lecture them about the virology conditions of a lung. (Interviews 2011, Dr. Kazi) Virology registrars interviewed were aware of the crisis that medical graduates face when deciding on a field to specialise in. They contended that medical students mostly specialise in fields that they are familiar with, and fields that they were exposed to in their undergraduate studies. Concerning this factor, a virology registrar indicated that:

“The undergraduate doctors are not exposed to the field of virology so when they qualify they just think about the things that they were doing during their undergraduate study and consider pursuing that. So I definitely agree. Virology was not well introduced in our undergraduate degree at all. We did a lot of micro and I think there must have been less than two weeks of our entire curriculum of six years that was allocated to virology. So there was very little exposure to it.” (Interviews 2011, Dr. Essop)

In addition, the lack of exposure given to registrars in their training period has also facilitated the migration of virology registrars out of the discipline or field. There have been reports where registrars have continued specialising and qualifying in virology despite finding out that the field does not fulfil their anticipations. However, there came a time where these registrars felt that the discipline did not offer what they seek, and resulted in migrating out of the medical laboratory speciality. For example, a virology registrar has migrated to clinical work because he missed clinical contact with patients (Interviews 2011, Dr. Dangor).

Exposure in Internship

Additionally, besides the lack of exposure due to anatomical pathology and virology being removed from the undergraduate curriculum, graduates serving their internship also receive negligible exposure to laboratory disciplines. During the two-year internship period, medical graduates are exposed to surgical disciplines, medical disciplines, obstetrics, paediatrics, and so on. However, there is no exposure to pathology (i.e. pathology including anatomical pathology

and virology). The only form of exposure that graduates experience to pathology during their internship is through being exposed to pathological reports from pathology diagnostics (Interviews 2011, Dr Watkins). However, they are never exposed to or visit laboratories to gain insight or gain a feel of what laboratory disciplines comprise of. As a result, the only encounter that medical graduates have with anatomical pathology or virology is when they actually specialise in it. This was proven to be problematic.

Due to the negligence of medical schools to expose students to the discipline, there are many instances where registrars that have chosen anatomical pathology or virology as a field to specialise in drop out. This is because they have no prior knowledge of what the discipline consists of (Interviews 2011, Dr Watkins). The high levels of trainee drop-outs have forced medical laboratory departments (such as anatomical pathology for example) to initiate a trainee drop-out programme to cater for the loss of time and resources that goes into training graduates. The programme allows graduates to apply to laboratory training posts to get a sense and feel of laboratory disciplines (Interviews 2011, Dr Rampersad). During this period, graduates do not attain registrar numbers which means that they are only exposed to the discipline in this programme. If graduates wish to specialise in the discipline after three months of exposure to the field, then they apply as registrars (Interviews 2011, Dr Rampersad). This programme may save resources spent on training registrars but does not provide sufficient exposure to the discipline. Exposure to laboratory fields are only available to those graduates that choose to apply to the trainee programme, whereas a large number of graduates from medical school still remain oblivious of the available laboratory fields that they can specialise in because there is no recognition given to these fields during their undergraduate studies (Interviews 2011, Dr Rampersad).

Misconception of Laboratory Disciplines

Another consequence of the removal of anatomical pathology and virology as modules in medical schools' curriculums and the general lack of exposure, is a misconception of laboratory fields. For example, many medical school graduates have a misconception of what anatomical pathology actually is. They have a perception that anatomical pathology is a field that only requires one to be engaged in post mortems of human bodies (Interviews 2011, Dr Suraj & Dr

Nair). However, there remains a huge divide between this perception and what the discipline is actually about. Due to this misconception, medical graduates are reluctant to choose anatomical pathology as a field to specialise in. They often specialise in disciplines or fields that they have been exposed to such as surgery, obstetrics, or paediatrics, but not laboratory disciplines (Interviews 2011, Dr Suraj). This clearly indicates how the failure to expose students to the discipline results in the failure to recruit anatomical pathologists in South Africa.

Even concerning virology, the removal of virology as a module offered in the medical undergraduate degree leads to many misconceptions of the discipline. Medical graduates specialising in virology have no prior knowledge of what the discipline contains. They fail to recognise that virology is a laboratory-based discipline with minimal patient contact. The outcome of this is a high turn around (i.e. drop-out) of registrars because they find that the discipline is not what they expected it to be (Interviews 2011, Dr. Essop). Besides this indicating the loss of investments in training drop-outs after a certain period of time, it clearly implies that the lack of awareness and exposure given to virology is a factor affecting the recruitment of virologists in South Africa. In this example, we find that the outcome of the lack of exposure is a high drop-out level of registrars training to become virologists. To further emphasise, a virology registrar said:

“From my understanding there has been a high turn around from registrars in virology, that come through, haven’t completed their time and find in six months to a year that its not exactly what they wanted. So the people usually decide whether they like that speciality while they are doing the training whereas virology because there is no exposure even in internship and com service there is no rotation through virology, people are not sure exactly what it entails. So they join the programme thinking let me try it out and looking at it for the first time, some people don’tlike it, don’t enjoy it, they find that they miss the patient contact, that the content of the work is very molecular based and very scientific. So a lot of it has to do with lack of exposure, not only during undergraduate training but also during your internship and com service.” (Interviews 2011, Dr. Essop)

Quality of Medical Laboratory specialists

The removal of laboratory disciplines from the medical curriculum also affects the quality of medical laboratory specialists produced. For example, the removal of anatomical pathology as a third year undergraduate model has also affected the quality of specialists qualifying in the field (Interviews 2011, Dr Maharaj). When questioned about the consequence of the removal of the module from the undergraduate curriculum, a chief anatomical pathologist replied:

“It is actually sad because it has created poor quality doctors and you speak to any of the lecturers you speak to the dean, they will admit that the quality of doctors qualifying now is different from the past because they are not, the training that we had was more thorough and gave you exposure to basic disciplines.”(Interviews 2011, Dr Maharaj)

Therefore, besides facilitating the shortage of anatomical pathologists in KwaZulu-Natal, the lack of exposure to the discipline has also reduced the quality of specialists that are qualifying. Medical students in their undergraduate studies lack intensive training into laboratory disciplines, and as a result qualify with fewer expertise and less experience (Interviews 2011, Dr Maharaj).

Reputation of Laboratory Disciplines through “Word of Mouth”

It has also been argued that anatomical pathology remains a speciality that is exposed through word of mouth. The large portion of medical students specialising in the discipline, chose it as a speciality due to professional advice from parents and family members that are either anatomical pathologists or have knowledge of the field. A respondent added:

“And a lot of it is actually word of mouth. There are a number of medical students whose parents are doctors. So those parents know so they advise their children on what to do. And a number of them have actually consulted with us about doing pathology. As I was saying a lot of these doctors whose children are medical students and they have been enquiring about pathology. So a number of actual registrars especially at Wits, parents are doctors.” (Interviews 2011, Dr Aniruth)

Therefore, the above mentioned example signifying the exposure of laboratory disciplines through the word of mouth clearly indicates the crisis that medical laboratory fields in South

Africa experience. The shortage of laboratory specialists requires the country to fully expose these disciplines to medical students in their undergraduate studies so that they consider it as a viable option to specialise in. However, if laboratory disciplines continue being exposed through the word of mouth, awareness to these fields will always be limited, and South Africa as a country will always fail to successfully recruit new graduates to medical laboratory disciplines.

Intranet

Another factor relating to the lack of exposure that facilitates the recruitment crisis of medical laboratory specialists in KwaZulu-Natal is the eradication of the „intranet“. This is a product of the transformations that occurred within the manner in which the anatomical pathology and virology training departments are run. Previously, these departments were run by the KwaZulu-Natal's Department of Health. Under the department of health, the recruitment of trainees into medical laboratory specialties achieved greater success due to the provision of recruitment infrastructures (Interviews 2011, Dr Rampersad). An example of such an infrastructure was the availability of the intranet. The intranet was an internet based service that listed all medical laboratory vacancies. This meant that trainees were able to access the intranet to obtain an idea of the scope and vacancies of medical laboratory specialties before they enrol into any specialty (Interviews 2011, Dr Rampersad).

Hence, when the department of health controlled the departments of anatomical pathology and virology, there was exposure to these laboratory disciplines. However, three years ago, these departments were taken over by a private entity. When this occurred, laboratory disciplines were no longer featured on the department of health's intranet, which removed the exposure that these disciplines were given. Currently, medical graduates have no idea of the specialties that they can specialise in; neither do they have an idea of the scope of each of these specialties (Interviews 2011, Dr Rampersad). The recruitment of medical laboratory specialists now works on an open applicant system. This system requires applicants to visit departments and post their Curriculum Vitae ahead of time. When a post arises then the Human Resource department contacts applicants and makes them aware of the post. The problem with this system is that medical graduates can only apply to disciplines that they are already familiar with because the departments no longer have a listing of the available medical laboratory disciplines that they can

specialise in. It has been reported that there is often a misconception because when medical graduates do not see any listings of laboratory disciplines, they assume that these departments are full and have no available training posts (Interviews 2011, Dr Rampersad). This however, further exacerbates the shortage of medical laboratory specialists because there are less students applying into medical laboratory specialities, particularly anatomical pathology (Interviews 2011, Dr Rampersad).

5.2.2.2 Recognition

Recognition was cited as a second major social factor resulting in the failure to retain and recruit medical laboratory specialists in South Africa. Respondents emphasised that many anatomical pathologists that have migrated abroad, have done so due to the negligible recognition their expertise attained in South Africa. Whilst anatomical pathologists may be medical „specialists“, a large number of these specialists were also involved academically as researchers, heads of departments, and professors. However, the contributions that they have made in South Africa towards the discipline and healthcare has received negligible recognition due to the stereotype of medical laboratory fields on a whole being regarded as unnecessary or unimportant (Interviews 2011, Dr Ramlucken & Dr Suraj). As a result, many of these specialists have migrated to countries such as the United Kingdom and Canada. However, it is important to note, that their migration to these countries was not due to better employment opportunities, it was due to a better opportunity for their input to be recognised (Interviews 2011, Dr Ramlucken).

In addition, respondents have also emphasised that their work is unrecognised and unappreciated even by clinicians (i.e. doctors) that they have direct contact with. Clinicians have no knowledge of the difficulties and expertise required in anatomical pathology and virology. They fail to realise the input that is needed for these specialists to report and give feedback on specimens. This leaves many anatomical pathologists and virologists feeling unappreciated and unrecognised. Regardless of their input in healthcare and their expertise, the failure to recognise what they do results in them feeling devalued (Interviews 2011, Dr Suraj). This constitutes as a significant factor that pushes these specialists to migrate. As indicated above, medical laboratory specialists migrate to countries such as the United Kingdom and Canada where their expertise and inputs are valued.

The sense of devaluing also comes from the public of South Africa who have no idea what medical laboratory specialists do. The general public fail to realise that medical laboratory specialists are situated at the top of the healthcare chain, in which their opinion determines the effectiveness of healthcare systems. The general public fail to realise the complexity of these disciplines and have no idea that medical laboratory specialists are also doctors. This is largely due to the failure that medical laboratory specialties receive in South Africa, the failure to promote and create an awareness of these disciplines (Interviews 2011, Dr Suraj).

These factors surrounding the lack of recognition largely affect the ability to retain and recruit these specialists in South Africa. Medical laboratory specialists believe that their input should be acknowledged because healthcare systems around the world depend on their expertise and professional opinions. However, South Africa does not give them this recognition. In response to this lack of recognition, the country has experienced an outflow of many medical laboratory specialists (anatomical pathologists and virologists in this case) in search for better recognition of their work.

5.2.2.3 Crime

Of the many social and political factors mentioned in interviews, all respondents of this study asserted that crime was the main driver that has forced specialists out of the country. Due to the fear of being victims of high profile crimes, or past experiences of crime, KwaZulu-Natal has experienced a large outflow of anatomical pathologists. These pathologists have migrated to countries that could offer them and their families "better standards of living. Important to note is that when we refer to „standards of living," we are not implying better economic opportunities such as higher paid jobs. Here we are referring to a search for safer havens, countries and places of better security (Interviews 2011, Dr Watkins). The role that socio-economic factors, particularly crime plays in the failure to successfully recruit and retain medical laboratory specialists in South Africa was emphasised by a respondent who stated:

"I know a lot of guys that have migrated. And its the general political set up here, which, the crime and all that sort of thing. That is a factor. We certainly lost partners from here. We have lost 5 partners from here that went to Australia. Some ten years

ago but some more recently and they were concerned about the crime here.”

(Interviews 2011, Dr Van Vuuren)

This certainly signifies the role that crime plays in the failure to retain and recruit medical laboratory specialists in South Africa. His response showed that from his company alone, which is one of the few medical laboratories in KwaZulu-Natal, five specialists have migrated due to the rate of crime in South Africa (Interviews 2011, Dr Van Vuuren).

Crime does not only explain the country's failure to retain and recruit medical laboratory specialists that have already left, but also exists as a concern for those that have remained in the South African labour market. Respondents have also expressed that crime constitutes as a factor that would also force them to leave South Africa (Interviews 2011, Dr. Dangor). From a range of other factors mentioned such as: career enhancement, age, race, service delivery, salaries, and so on, crime will be the main driver of these specialists out of South Africa. Therefore, whilst it constitutes as a factor that has already pushed many medical laboratory specialists abroad, it still serves as a threat and concern that will force many more to leave (Interviews 2011, Dr. Dangor). This is because many of the specialists interviewed in this study indicated that they have an intention to migrate to countries and places that are considered to be safer havens. Of the factors that they have mentioned that would push them to emigrate, crime was a factor that commonly aroused (Interviews 2011, Dr Suraj). The role that crime plays in the retention of South African skilled workers in general was emphasised by Pillay (2007), in chapter two of this study, who showed that crime was the main factor responsible for the emigration of higher and middle class white and Indian populations (which are the two races that constitute the highest number of doctors). He added that generally speaking, over 96% of emigrants from South Africa have cited crime as their main reason for leaving the country (Pillay, 2007).

5.2.2.4 “Children’s future”: Education and Employability

Education

Apart from the providing greater security for families, there were also instances where the out migration of anatomical pathologists and virologists from KwaZulu-Natal were due to family concerns other than crime. Of these, one of the concerns that was pre-dominant throughout most

of the interviews in this study dealt with the education and future employability of children. This concurs with a study by Adepoju (2006) which showed that many South African healthcare professionals believe that South Africa does not have the capacity to provide their children with high standards of education and high-skilled employment (Adepoju, 2006). The country was accused of being unable to develop jobs fast enough to cater for the strikingly fast growing young population (Adepoju, 2006). As a result, they have also emigrated due to concerns about the education and future employability of their children (Adepoju, 2006).

Participants of this study indicated that a number of anatomical pathologists and virologists have left South Africa, not because of their personal working conditions, but for the future of their children. Those that migrated believed that the education provided in South African schools were not up to standard (Interviews 2011, Dr Van Vuuren). They believed that if they remained in South Africa, then their children would lack access to and be deprived of qualitative educational facilities. Therefore, a number of medical laboratory specialists have emigrated to countries such as the United States and the United Kingdom that are able to provide their children with a high standard of education (Interviews 2011, Dr Van Vuuren).

Employability

Additionally, after 1994, KwaZulu-Natal has experienced a large out flow of white and Indian anatomical pathologists due to the affirmative action laws put in place. These laws served as threats to these specialists because they believed that the country would not have the capacity to provide their children with high-skilled jobs. The reason why I refer to affirmative action as a „threat“ is due to the questionable success of the law. In a nutshell, the law implies a method of fair discrimination where African people would have first preference and obtain more jobs than other races. However, the law has never materialised because we note that most of our managerial and higher skilled positions are still dominated by white employees. However, it still served as a threat to many Indian and particularly white anatomical pathologists. Hence, concerns regarding the future employability of their children were a significant driving force that pushed these specialists to migrate to countries that could provide better opportunities for their children (Interviews 2011, Dr Van Vuuren). This factor has been emphasised by a respondent who stated that 20 years ago, if you were white and held tertiary qualifications then you were

guaranteed a good job. However, after 1994, affirmative action entailed reverse discrimination which meant that even though you are a white individual that possesses tertiary qualifications, you are not guaranteed a job in South Africa (Interviews 2011, Dr Van Vuuren). He stated that many of his white, as well as Indian colleagues have migrated to better developed countries because they have kids who have graduated with university degrees but found it difficult to obtain employment in South Africa's labour market. Therefore, we note that concerns for children's future is a factor that negatively affects the retention and recruitment of medical laboratory specialists in South Africa (Dr Van Vuuren).

5.2.2.5 Compulsory Service

A particular retention strategy by the National Health Laboratory Service was also cited as a major actor in the shortage of medical laboratory specialists in South Africa. The NHLS is responsible for the human resources of all healthcare professionals in South Africa. In chapter three, we noted that one of the strategies to retain healthcare professionals in South Africa was the two year compulsory service, implying that registrars are required to work for the NHLS whilst they train. This strategy applies to medical laboratory specialists in general. Medical laboratory specialists are required to join the National Health Laboratory Service, and as part of their contract, are compelled to remain with the NHLS for two years after graduation (Interviews 2011, Dr Rampersad & Dr Maharaj). This entails two years of working for the NHLS which means that specialists are required to labour for the South African public healthcare sector for two years after they graduate. Graduates that leave before the completion of their two years of community service are compelled to pay a fine depending on the number of years remaining for the completion of their service. These fines can range up to R3 million (Interviews 2011, Dr Maharaj).

Whilst this may sound like a viable strategy that ensures the retention of South African medical laboratory specialists, it has only retained specialists temporarily. Findings of this study suggest that the compulsion of graduates to serve for the NHLS for two years creates a feeling of hostility because they do not have the freedom to make their own choices when they qualify. Medical laboratory specialists, like any graduate, want to feel the freedom of mobility on the completion of their studies. They believe that the many years of studying in order to become a

medical laboratory specialist has in itself, removed any form of freedom they once had (Interviews 2011, Dr Nair). The demanding laboratory disciplines required graduates to contribute their optimal performance and time into studying towards becoming a specialist. Being tied down by an additional two years of compulsory service has caused many young medical laboratory specialists to migrate on the completion of their compulsory service in response to feelings of hostility (Interviews 2011, Dr Nair). Once graduates complete their compulsory service, they are free to leave South Africa's public health sector. Respondents suggested that whilst there are instances of anatomical pathologists, for example, graduates migrate to private practices in South Africa (private laboratories for instance), the majority of them actually migrate out of the country to countries of better opportunities (Interviews 2011, Dr Nair). Therefore, the two year compulsory service in fact, facilitates the failure to retain and recruit medical laboratory specialists in South Africa.

This directly relates to the findings of a study conducted by George, Quinlan & Reardon (2009) which shows that from a survey of 1200 doctors in South Africa in the last year of their community service, over 900 expressed that they intend to work abroad (i.e. emigrating) on the completion of their community service, which shows that the compulsory community service measure only retains these doctors temporarily (for the duration of their service). (George, Quinlan & Reardon, 2009). Therefore, whilst working for the National Health Laboratory Service may seem to be an effective retention strategy, it has not actually facilitated the failure to retain and recruit medical laboratory specialists only, but many South African healthcare professionals at large.

Additionally, a number of graduates have left in the duration of these years because companies have agreed to pay their fines. The global shortage of medical laboratory specialities, particularly anatomical pathology, forces organisations around the world to use whatever recruitment tactic available to fill vacant laboratory posts. As a result, companies do not mind paying a fine of R3 million because they desperately need these specialists. Respondents have stated that R3 million is actually a drop in the ocean for companies (Interviews 2011, Dr Rampersad). Therefore, the two year compulsory service by the National Health Laboratory Service actually facilitates the failure to retain medical laboratory specialists in South Africa by creating feelings of hostility.

5.2.2.6 Career Enhancement

Anatomical Pathology: Super specialists

There comes a period in the careers of anatomical pathologists where these specialists believe that they have reached a stage in their qualifications that allows them to become super specialists. Hence, a large number of these specialists resort to migrating to countries that allow them to pursue a career of a super specialist. A super specialist in this regard, refers to the limitation of diagnosing skin biopsies alone (Interviews 2011, Dr Rampersad). It refers to anatomical pathologists being specialised in a certain field of pathology, such as biopsies for example. Specialists that have migrated for this career opportunity were required to write a qualifying entrance exam. Passing this exam means that they are competent enough to labour in other countries.

A small number of anatomical pathologists have emigrated from South Africa to become super specialists in other countries. Whilst the numbers may be small, this still constitutes as a factor that affects the retention and recruitment of medical laboratory specialists in South Africa (Interviews 2011, Dr Rampersad). If the country was able to provide these opportunities to its specialists, then South Africa would be able to retain a larger number of medical laboratory specialists because they would not have to migrate in search of super specialist opportunities (Interviews 2011, Dr Rampersad).

Virologists: Limited Role

The limited role that virologists play in South African healthcare should also be acknowledged as a factor affecting the retention and recruitment of medical laboratory specialists in the country. The lack of recognition and exposure given to virologists and virology as a speciality is a reason behind the limited utilization of virologists in KwaZulu-Natal. The lack of recognition implies that other disciplines and medical professionals do not consult virologists as often as they should regarding the diagnoses of virological diseases. Therefore, virologists are not sufficiently included in the management of patient health in South Africa's healthcare system, implying that they play a very limited role (Interviews 2011, Dr. Essop). Virology in South Africa remains purely a consultative service that is focused around service delivery. A basic example of virology service delivery is analysing and offering an expert opinion on the blood samples of patients. A

virologists commenting on the limited role of virology in KwaZulu-Natal and South Africa at large stated:

“Its all centralised and its all very limited. A virologist probably equals working for the NHLS and its not optimally what everything that a virologist can do. I could work for the university or the pharmaceutical industry or a research organisation or just do research you know.” (Interviews 2011, Dr. Kazi)

The role of virologists needs to be expanded so that they are able to successfully deal with viruses in South Africa such as the HIV/Aids epidemic, influenza disease, tuberculosis, and other diseases found in South Africa. This requires more research funding into the speciality that will allow virologists to experience a shift away from purely being about service delivery to more research based testing such as resistance testing for example (Interviews 2011, Dr. Butler). Virologists need to be included in advising the Department of Health in public health issues. For example, such an initiative would have included virologists in advising the Department of Health about the necessary steps and measures that needed to be put in place during the 2010 FIFA World cup to prevent the outbreak of influenza’s, foreign diseases and other viruses. However, virologists are not given such an opportunity. A virologist interviewed stated that virologists in KwaZulu-Natal are either never consulted or consulted on a random basis by the Department of Health. The department however, should fully utilize the expert opinions of virologists because their expertise are crucial in maintaining virology conditions in South Africa. This also requires an expansion in opportunities given to these specialists so that they are included in more research and teaching in the discipline (Interviews 2011, Dr. Kazi).

Additionally, a common mistake by South African healthcare laboratories is to use microbiologists to offer virology consultation. This however, can be problematic because microbiologists undergo a different training from virologists. The training that virologists receive is unique implying that the use of microbiologists for virology duties implies that many diseases leave laboratories misdiagnosed or insufficiently diagnosed (Interviews 2011, Dr. Butler). To elaborate, a virology registrar added:

“I agree with what you said in that people are not utilising access to virologists. And that yes there are a lot of virologists now, even the private laboratories don’t hire

virologists per se. They look for more for microbiologists feeling that microbiologists will be able to cover any virology issues as well. However, virology is quite specialised field. People think it is small but unfortunately it does expand to a large number of viruses and people don't consider viruses as causes of lots of infections until they have ruled out everything else. A lot of the diseases might go undiagnosed because there is no virology input. Microbiologists might not meet the virology needs completely and so we need to have at least one expert virologist on our team for consultation of these problems.” (Interviews 2011, Dr. Essop)

These factors imply that despite the capabilities of virologists in South Africa, the country fails to fully utilise the expertise of these specialists. What this further does is constitutes as a factor affecting the recruitment and retention of virologists in South Africa. This will be explained in the following section that explains how expanded career opportunities play as a factor affecting the retention of medical laboratory specialists (Interviews 2011, Dr. Essop).

Furthering Studies and Expanded Career Experiences

Additionally, many anatomical pathologists have migrated to enhance their careers by furthering their studies. A few respondents in this study spoke of personal examples where anatomical pathologists have migrated to countries that allow them to further their studies. However, it is important to note that the South African labour market for anatomical pathologists does not restrict specialists from furthering their studies. When the working conditions for these specialists have been assessed, it has been noted that many laboratories are linked to academic institutions such as universities for example. This allows South African pathologists to further their studies at no cost (Interviews 2011, Dr Rampersad). However, despite the availability of furthering their studies, we still find that anatomical pathologists have emigrated to enhance their human capital by furthering their studies abroad. However, it needs to be emphasised that this remains a personal and individual decision because the South African labour market does not prevent these specialists from pursuing their academia. Nevertheless, there are still examples where the failure to retain and recruit medical laboratory specialists in South Africa was due to specialists migrating to study abroad at institutions such as Oxford, for example (Interviews 2011, Dr Maharaj).

Concerning virologists, it has also been expressed that an average number of three former KwaZulu-Natal virologists have migrated out of South Africa for new career opportunities. They believed that the South African labour market for virologists, due to the limitations it places on virology roles, did not offer good career opportunities. As a result, these three former virologists have migrated abroad and taken up pharmaceutical positions. Whilst these positions may not be part of the virology speciality, it allowed these specialists to experiment medicine in a manner that they could not in South Africa. The international labour market allowed these specialists to work with new drugs and treatments. These opportunities do not exist in South Africa (Interviews 2011, Dr. Butler). To understand the role that new career opportunities constitute as a factor affecting the retention of medical laboratory specialists, a respondent elaborated:

“Principally because in our country in terms of medicine among most of the disciplines, the type of pathology that we see in South Africa is very different from the type of pathology seen in those countries that I mentioned, in the UK and US. And I think a lot of doctors go because they want to see something different. They want to see things that they haven’t seen during their training and during their teaching. So a lot of doctors go there to see a wider range of diseases and to be able to manage those diseases than here.” (Interviews 2011, Dr. Essop)

For example, a virology registrar added that when virologists emigrate, they are exposed to a larger and different spectrum of diseases. In South Africa, the most prominent disease that virologists are exposed to is HIV/AIDS. However, the South African healthcare system does not expose virologists to the larger spectrum of diseases that are related to HIV/Aids. The diseases found overseas however, in the United Kingdom for example, is comprised of larger spectrums because patients infected with HIV/Aids overseas have a different spectrum of diseases than patients infected with HIV/Aids in South Africa do (Interviews 2011, Dr. Essop). To further elaborate, a respondent added:

“I mean in terms of spectrum of diseases. They type of spectrum of diseases that you see overseas is very different to what our community sees largely because our diseases are driven often by HIV whereas in other settings even there people who are HIV infected tend to have a different spectrum of disease. I also think the research

opportunities abroad are much more than what we have here.” (Interviews 2011, Dr Essop)

Therefore, KwaZulu-Natal and South Africa at large experiences a loss of medical laboratory specialists to overseas markets because these markets offer career and research opportunities that are more robust, and their role as noted in the section on the limited role of virologists, are expanded (Interviews 2011, Dr. Kazi).

5.2.2.7 International Recognition of Skill

The international recognition as a factor affecting the retention and recruitment of medical laboratory specialists concur with the views of Freeman (2008), found in chapter two of this thesis, who indicates the role which the importance of skill plays in the retention of professionals in general. For Freeman (2008), skilled personnel are regarded as valuable assets demanded by developed nations to produce high-end products. Developed countries attract skilled workers from less developed nations to overcome the shortage of skills in their labour market (Freeman, 2008). In relation to healthcare professionals, the International Labour Organisation (2011) referred to this as a global conveyor belt that passes on healthcare professionals from South Africa to more developed countries. Similarly, the skills of medical laboratory specialists are globally attracted, making them professionals that are attractive to developed nations (IOL, 2011). Due to this, medical laboratory specialists like other South African healthcare professionals or professionals in general, are extracted from South Africa by more developed countries. Once again, this is because medical laboratory specialists are a part of the global labour market for South African healthcare professionals, and a part of the global labour market for professionals at large.

South African anatomical pathology qualifications are globally recognised. The global shortage of these specialists creates an increasing demand for South African specialists to fill vacant positions in many countries (Interviews 2011, Dr Chetty). For specialists to migrate, they are required to write an entrance exam in the countries that they migrate to in order to prove that they are competent to practice anatomical pathology in host countries. Previously, for anatomical pathologists to migrate, they were not required to write any board exams or join any medical

council because their qualifications were recognised (Interviews 2011, Dr Rampersad). However, to stop the large outflow of these specialists from South Africa, the minister of health initiated a law or policy that requires healthcare professionals to write an entrance exam in the countries that they choose to migrate to (Interviews 2011, Dr Rampersad). As a result, for anatomical pathologists to migrate to the United Kingdom or the United States for example, they are required to become a member of the college of pathologists by passing these countries' board exam (Interviews 2011, Dr Rampersad). This means that the migration of anatomical pathologists out of South Africa has become more difficult. In addition, pathologists are now required to pay for their own examination process and air flights (Interviews 2011, Dr Rampersad).

However, despite the difficulties experienced in emigrating, many anatomical pathologists, especially young and newly graduated anatomical pathologists still emigrate, and amplify the shortage of these specialists in South Africa's healthcare system. South African anatomical pathologists generally stand a good stead in the global labour market for medical laboratory specialists (Interviews 2011, Dr Watkins). Despite the requirement of writing an entrance exam in order to emigrate from South Africa for most countries, the quality and standard of anatomical pathology training in South Africa is high enough to make its anatomical pathologists attracted and recruited by many countries (Interviews 2011, Dr Watkins). Respondents assert that the locums (both short and long term) that South African pathologists are familiar with can be performed anywhere in the world, and this makes it easy for South African pathologists to emigrate (Interviews 2011, Dr Chetty). This implies anatomical pathology is generally a very universal speciality. Therefore, the qualifications of South African anatomical pathologists are globally recognized, allowing these specialists to migrate and practice their speciality abroad.

South African anatomical pathologists are even head-hunted through international recruitment agencies due to their recognised expertise (Interviews 2011, Dr Aniruth). When questioned about the universality and mobility of South African anatomical pathology qualifications, a participant of this study replied:

“Generally speaking South African qualifications stand you in very good stead in the overseas market. You do have to write exams for a lot of the countries that I have named. But the quality of the training in South Africa is of a high enough standard to

stand you in good stead in those countries. And yes, anatomical pathologist unlike some of the other disciplines is very universal. You get the same tumours coming through, you get the same scenarios with slight regional variations, but very slight.”

(Interviews 2011, Dr Watkins)

A former South African anatomical pathologist serves as an empirical example of the manner in which South African pathologists are head hunted and recruited by other countries. Dr Manderee, graduated and practiced his first few years of anatomical pathology in South Africa. However, a few years into his career, he was recruited by a university in the United States, through a recruitment agency (Interviews 2011, Dr Manderee). This supports the argument in this section that elaborates on the recruitment agencies that are used by countries to recruit medical laboratory specialists from South Africa. Through the use of the recruitment agency, the United States was able to head hunt this individual and recruit him without him even having to apply for a job (Interviews 2011, Dr Manderee). This also emphasises the recognition of South African anatomical pathologists globally. The same respondent stated that when he resided in South Africa and practiced anatomical pathology in the country, there were twelve anatomical pathology consultants in his department. Presently, none of those consultants are practising in the department. Whilst some of them (i.e. four) have migrated to private laboratories in South Africa, majority (i.e. eight) have been recruited to practise overseas. The countries that these specialists have migrated to are: Australia, Canada, the United Kingdom and the United States (Interviews 2011, Dr Manderee). These countries serve as an indication of the recognition that South African anatomical pathologists are given internationally. The high quality of training that these specialists attain in South Africa makes them globally attractive. Therefore, countries recruit South African specialists to overcome the shortage of medical laboratory specialists in their healthcare systems (Interviews 2011, Dr Manderee).

Another respondent added that because anatomical pathology is a globally demanded speciality due to the global shortage, most countries tend to bypass any form of laws that regulate the immigration of anatomical pathologists. He states that most common wealth countries accept and recognise South African anatomical pathology qualifications (Interviews 2011, Dr Maharaj). In addition, whilst we have assessed above that there are entrance exams for South African

anatomical pathologists to migrate to other countries, because of the global shortage of these specialists, most countries allow South African pathologists to practise the discipline without having to write entrance exams. In other branches of medicine there are compulsory entrance exams that immigrants have to take. However, because anatomical pathologists are needed globally, there are instances where entrance exams or any other forms of regulations that stem migration have been surpassed (Interviews 2011, Dr Maharaj). This was also emphasised by the former South African anatomical pathologist currently working in the United Kingdom. He stated:

“I never wrote an exam after I left here. I have never written an exam since I left here because that was one of my conditions. I am not going to come to the US and write an exam because I have done all the exams I want to do. If you want me, you take me as you are, or I am not coming. So I never wrote any qualifying exams. I still haven’t.” (Dr Manderee)

This emphasises the bargaining power that South African anatomical pathologists possess globally due to the recognition of their skill. Due to the global shortage of anatomical pathologists, and the attractiveness of South African anatomical pathologists, there are instances where South African pathologists were allowed to practice in other countries without having to write entrance exams.

The same cannot be said for virologists. Unlike anatomical pathology, virology is not an internationally recognised speciality. However, whilst virology „qualifications“ may not be recognised, virology „skills“ are. By saying this, I am implying that it is not easy for virologists to migrate abroad and still practice virology, because virology qualifications are not recognised globally. However, the skills of virologists still make them attractive internationally, but when they migrate, they are migrating out of the speciality at the same time (Interviews 2011, Dr. Kazi).

For example, the United Kingdom and Australia does allow virologists to practice the speciality in the country because it does utilize the expertise of virologists. For South African virologists to migrate to the United Kingdom or Australia, they are required to write a board exam which

allows them to remain as virologists. However, other than these two countries, there were no other countries mentioned that utilize virologists. The United States and many other countries do not recognise virology qualifications. Therefore, when South African virologists migrate to these countries, they are additionally migrating out of the virology field. It has been noted that it is easier for a virologist to migrate if he/she is willing to migrate out of the speciality. In that way, he/she can gain employment overseas that meets his/her career and professional demands (Interviews 2011, Dr. Kazi). Thus, when virologists migrate out of South Africa, they migrate to other countries whereby they abandon virology and practice in more general fields such as: medical consultants, pharmacists, or medical practitioners (Interviews 2011, Dr. Kazi).

Having said this, the international recognition of skill is not a factor that only affects the retention and recruitment of anatomical pathologists. The fact that virologists are able to migrate abroad and practice in other fields such as pharmaceuticals for example, implies that the skills and expertise of South African virologists are still recognised globally. The only difference between anatomical pathologists and virologists concerning this matter is that anatomical pathologists' qualifications are globally recognized allowing them to practise anatomical pathology abroad, whereas virology qualifications are not. However, the skills and expertise of both these specialists are attractive to the international labour market, implying that the international recognition of skill (i.e. and not qualifications) constitutes as a factor affecting the retention of medical laboratory specialists in South Africa.

Destination Countries

The lack of sociological analysis in the medical laboratory field makes it difficult to determine the destination countries that medical laboratory specialists migrate to. However, from the above discussion on the international recognition of skills in relation to the interviews conducted in this study, it can be deduced that the countries that attract South African medical laboratory specialists are the same countries that attract South African healthcare specialists in general. Reason being is that medical laboratory specialists are personnel that also fall under the global labour market for South African healthcare professionals, as shown in chapter three. The fact that medical laboratory specialists are a part of the global labour market for healthcare professionals implies that the countries they migrate to are the same countries that South African healthcare

professionals in general migrate to. Therefore,, it has been found that the main destination countries that attract anatomical pathologists and virologists are: the United Kingdom, the United States, Canada, Australia, Ireland, Denmark, New Zealand, and the Netherlands (Interviews 2011, Dr Pather). These countries are known for drawing South African medical laboratory specialists on a permanent basis. Another country that attracts medical laboratory specialists from South Africa is the United Arab Emirates, however, it does so on a short term basis (Interviews 2011, Dr Pather). Specialists that migrate to this country do so mainly on a contract basis and return to South Africa on the completion of their contract. Important to note is that these countries have been mentioned when assessing the global labour market for South African healthcare professionals, implying that medical laboratory specialists, whilst having unique distinctions from other healthcare professionals, still follow similar migratory patterns (i.e. destination countries) to South African healthcare professionals in general (Interviews 2011, Dr Pather).

In addition, we need to keep in mind that the countries mentioned above do not readily accept and recognise South African medical laboratory qualifications, particularly virology qualifications. Therefore, many medical laboratory specialists, especially virologists migrate out of the profession when they migrate abroad. However, the purpose of this section was solely to indicate and provide a general overview of the movement of South African medical laboratory specialists, by outlining the countries that they migrate to.

5.2.2.8 Working Conditions

When assessing the probability of working conditions constituting as a factor affecting the retention and recruitment of medical laboratory specialists, it has been deduced that the conditions that both anatomical pathologists and virologists work under are not optimal but are of a good and acceptable quality. Respondents have suggested that they are in actual fact, content and satisfied with their working conditions despite the burdens placed on them due to the shortage of medical laboratory specialists in South Africa (Interviews 2011, Dr Watkins).

Concerning working time, they have indicated that the hours that both anatomical pathologists and virologists work are flexible and very rarely exceeds 56 hours a week (Interviews 2011, Dr

Rampersad). There is a common agreement that the job satisfaction experienced by medical laboratory specialists is dependant on whether they labour in the public or private healthcare sector in South Africa. If so, then the only way we can negate that anatomical pathologists and virologists experience good working conditions is via assessing both healthcare sectors. Concerning anatomical pathologists and virologists, it was gathered that their working hours are flexible in both, the private and public healthcare sectors. An anatomical pathologist situated in a private laboratory indicated that the working hours are one of the main attractions to anatomical pathology because these hours are fairly controlled (Interviews 2011, Dr Van Vuuren). When questioned about the public sector, he added that working hours are even better in the public sector because there are pre-determined and even more so controlled. However, by controlled, I am not implying that anatomical pathologists have a strict number of hours that they have to labour in a week, because whilst these hours might be controlled and pre-determined, there are not stipulated, implying that the hours these specialists work are quite flexible (Interviews 2011, Dr Rampersad). Their working contracts suggest that they are bound to labour for 56 hours a week, but this is unit dependant. Certain units work more than 56 hours a week whilst others may work less (Interviews 2011, Dr Rampersad).

Another positive working condition cited by anatomical pathologists and virologists, particularly those situated in private laboratories was leave. Specialists get an annual leave of 45 days excluding weekends and public holiday, and this is rather lenient considering the shortage of anatomical pathologists in KwaZulu-Natal (Interviews 2011, Dr Chetty). Additionally, anatomical pathologists situated in KwaZulu-Natal laboratories can also work from home, implying the flexibility they find in their working conditions. In the public sector, anatomical pathologists were provided with microscopes in their households. This allows them to take their work home and work within a time frame that suits them. For example, a respondent added that if he did not complete his report at work because he went home early, he could complete it at night at home (Interviews 2011, Dr Mkhize).

Even concerning the technology available and the manner in which laboratories are organised, it has been attained that the technology that these specialists have access to are comparable to many first world or developed countries. Respondents emphasised that specialists from the

United States and the United Kingdom that have visited laboratories in KwaZulu-Natal, were actually amazed and impressed with the technology and facilities contained in these laboratories (Interviews 2011, Dr Suraj). This suggests that the working conditions that are available to medical laboratory specialists is not a factor that results in the migration of these specialists. A respondent commenting on the infrastructure of laboratories stated:

“The infrastructure in this hospital and especially in my department is excellent. Actually we have got even things in our department that even private labs don’t have. So the infrastructure is excellent in this department and the organisation is providing us with what we need in terms of diagnosis. So in the lab side infrastructure is good unlike the hospitals which are in rural KZN.” (Interviews 2011, Dr Mkhize)

Additionally, Dr Manderee, a former South African anatomical pathologist practising in the United States added that the South African infrastructure and facilities are not just comparable, but are even better than many other countries. He serves as a personal example of how working conditions in South Africa is not a factor affecting the failure to retain and recruit medical laboratory specialists in South Africa. In fact, he added that South African working conditions (including laboratory infrastructure) for medical laboratory specialists are better than many other countries (Interviews 2011, Dr Manderee). When questioned regarding this issue, he stated:

“Because when you go there, its not much greener. When I went to the United States the facilities that I had there were of a lesser, I won’t say of quality, but lesser than the amount that I had in South Africa. I give you a small example. We use antibodies in certain tests and we have a range of antibodies. So when I was in South Africa we probably had about, I am giving you an arbitrary figure, about 100 antibodies for a variety of tests in my speciality. When I went to the US, we had half of that. So I was leaving something that I was enjoying of higher excellence and quality to something that was...I built it up subsequently but these are just examples.” (Interviews 2011, Dr Manderee)

KwaZulu-Natal virologists also assert that they are satisfied with their working conditions. Whilst they believe that there should be an expansion of the virology role and that the discipline should be more academically and research inclined allowing them academic opportunities, it was

found that KwaZulu-Natal virologists are content with their working conditions. Therefore, working conditions were not found to be a factor affecting the retention and recruitment of virologists in South Africa (Interviews 2011, Dr. Butler). Both anatomical pathologists and virologists have also indicated that they enjoy the privileges of being affiliated to educational institutions in KwaZulu-Natal, particularly the University of KwaZulu-Natal. This implies that a number of medical laboratory specialists are staff members (i.e. lecturers) in the University of KwaZulu-Natal. Being a part of the University's staff board means that specialists get to enjoy privileges such as being allowed to further their studies at no cost (Interviews 2011, Dr Rampersad & Dr Watkins). For example, an anatomical pathologist situated in the public healthcare sector argues that his employment allows him to grow academically. He is currently furthering his studies by doing a Masters degree, and can also further that by doing a PhD if he wishes (Interviews 2011, Dr Mkhize). There have also been included in a large amount of research of their fields. This however, is unique to anatomical pathology and not virology. For example, a private laboratory in KwaZulu-Natal publishes a medical journal that allows its anatomical pathologists to be involved in research and academia. Even considering the number of cases reported in research, it has been noted that this laboratory publishes and reports on more cases than KwaZulu-Natal's Medical School does (Interviews 2011, Dr Aniruth).

Therefore,, the above assessment of the working conditions of anatomical pathologists and virologists indicates that working conditions does not play a role in the failure to retain and recruit medical laboratory specialists in South Africa. Whilst there may be distinctions between the working conditions of virologists and anatomical pathologists, such as anatomical pathologists being more research inclined, the overall finding was that the working condition of both these specialists were good, implying that working conditions does not constitute as a factor affecting the retention and recruitment of medical laboratory specialists in South Africa.

5.2.2.9 Race

KwaZulu-Natal is compromised of a skewed racial distribution of anatomical pathologists. In the province, the racial distribution of anatomical pathologists is skewed towards Indian specialists. By saying this I am implying that Indians constitute the largest population for anatomical pathologists in KwaZulu-Natal. This skewed racial distribution however, extends to

South Africa as a whole, and constitutes as a factor that negatively affects the retention and recruitment of medical laboratory specialists in the country. The racial distribution in the country however, is skewed towards the white population. This implies that whites constitute the largest group in anatomical pathology in South Africa. Considering the country's population ratios, in which Africans comprise the largest racial category in the country, the speciality still remains a nationally racialised profession (Interviews 2011, Dr Suraj). Despite Africans comprising of the largest population group in post-apartheid South Africa, they are still negligibly represented in pathology. For example, findings suggest that 85% of South Africa's anatomical pathology positions are held by white specialists, with Indians comprising 14% of the population. Africans on the other hand compose of less than 1% of the workforce, indicating that it is a profession still dominated by white specialists (Interviews 2011, Dr Suraj). Whilst findings from this study indicate that Indians dominate the KwaZulu-Natal labour market for anatomical pathology, national statistics show that whites dominate the national labour market for these specialists.

Despite the state's implementation of affirmative action in the recruitment of medical laboratory specialists in South Africa, there still seems to be racial discrimination in the employment distribution for these specialists. For example, in KwaZulu-Natal, there are only two African anatomical pathologists (out of a population of 23) and no African virologists (Interviews 2011, Dr Mkhize). Whilst this may be a reflection of KwaZulu-Natal alone, national statistics indicate that this scenario is evident throughout the country. For example, the year 2010 was the first year that Pretoria graduated an African anatomical pathologist (Interviews 2011, Dr Suraj).

It also needs to be acknowledged that the shortage of African anatomical pathologists is not specific to only the private or public healthcare sector. Due to all pathologists being trained in the public healthcare sector, the shortage of these specialists in this sector has a rippling effect on the racial composition of pathologists in the private healthcare sector. Put differently, the shortage of African anatomical pathologists in the public healthcare sector translates to a shortage of African anatomical pathologists in the private healthcare sector, because all pathologists are trained and produced in the public sector. In addition, the shortage of African specialists is not unique to anatomical pathology, but to medical laboratory disciplines on a whole (Interviews 2011, Dr Ndlovu). A respondent stated:

“The racial distribution is skewed everywhere. Not only in anatomical pathology but obviously its more exaggerated in the laboratory industry.” (Interviews 2011, Dr Ndlovu)

In addition, the situation has not changed because in KwaZulu-Natal, there are no African registrars in anatomical pathology or virology which would indicate a changing demographic in the racial composition of these specialties.

Previous Injustices

However, concerning the reasons behind the shortage or absence of African pathologists in the country, it has been noted that the shortage is not due to racial imbalances in the hiring practices of pathologists in South Africa. The shortage is more attributed to the racial history of the country, apartheid (Interviews 2011, Dr Ndlovu). There are no specific deterrents for Africans to specialise in anatomical pathology or virology. The shortage however, is due to the personal preferences of African medical students and is not a product of racial hiring practises (Interviews 2011, Dr Mkhize). African medical students are given the same exposure and opportunities as other races are to these disciplines. Despite equal exposure and opportunities, there still remains a shortage of African pathologists and virologists. However, this shortage is attributed to the general lack of African practitioners to specialise in these fields. The unwillingness of African doctors to specialise in fields is not specific to medical laboratory fields. There is a general lack of Africans specialising in many fields such as paediatrics, surgery, and medicine, for example (Interviews 2011, Dr Suraj).

To elaborate, the reason behind the shortage is because African doctors feel that once they qualify, they immediately enter private practices as general practitioners to earn a living (Interviews 2011, Dr Suraj). Specialising in medical laboratory fields require an additional four years of sacrifice, and there is a general perception that most African doctors are unwilling to sacrifice these additional years towards studying whereas they could leave and earn a living immediately (Interviews 2011, Dr Suraj). Considering previous racial imbalances of the past, African children were not given the opportunity to obtain optimal and high standards of school education and tertiary qualifications. Whilst the post-apartheid regime may have changed this

demographic to a certain extent, African medical students do not choose to specialise because they require an immediate income to support families or pay back educational loans. This may be a generalisation that does not apply to all African students or individuals in South Africa; however, responses from a participant indicate that it still plays a significant factor in the shortage of anatomical pathologists and medical laboratory specialists on a whole (Interviews 2011, Dr Ndlovu). He stated:

“Ja, ja there is, not anatomical pathologist only. Its all the specialities. Its the financials. With the African background, when you are finished medical school, you are expected to support the rest of your family. So if you are coming to specialise, you earn less than a GP. So it will be a five year delay and your family will be expecting you to do things for them. So the background plays an important role.” (Interviews 2011, Dr Mkhize)

Another stated:

“We come from a past that was racial and at that time there were no opportunities for African children to actually become doctors. That is one, and two they were not encouraged to specialise, three you must remember that African children come from a background where there is just no economic freedom. You know where there was no money from their families, so most of the guys would finish and go back and become GPs so that they pay off the loans they used to study, you know. So it has got most to do with the past history.” (Interviews 2011, Dr Ndlovu)

Indirect Discrimination

Whilst they may not be any form of direct discrimination of African pathologist in KwaZulu-Natal laboratories, there are still forms of indirect discrimination. The general notion concerning race is that all pathologists regardless of their racial classification are treated equally. However, there are instances where African pathologists' expertises have been undermined. It has been noted that there are times where African anatomical pathologists are not consulted because there is a notion that they know less, or are less experienced than other race groups, such as Indians for example. The reason behind this is the racial legacy of apartheid in South Africa as well as racial stereotypes such as Africans being uneducable, for example (Interviews 2011, Dr Mkhize).

Whilst there are no differences in the qualification and expertise based on the racial classifications of anatomical pathologists in South Africa, the history and legacy of apartheid along with racial stereotypes has formed a basis for racial discrimination for African anatomical pathologists. This may not be a factor affecting the recruitment of medical laboratory specialists in South Africa, but may be a factor affecting the retention of these specialists. I strongly believe that the feeling of being devalued or degraded through racial stereotypes may force African anatomical pathologists to migrate in search of recognition and equality (Interviews 2011, Dr Mkhize).

Concerning virology, the KwaZulu-Natal Statistics reflects that there are racial inequalities in the recruitment of virologists. However, the population of virologists is far too small to assess whether racial practices exist in the training and hiring of virologists. Whilst official statistics formulated by the Health Professionals Council of South Africa indicate that there are five virologists in KwaZulu-Natal, findings of this study show that there are only three (Interviews 2011, Dr. Dangor). This number however, is not large enough to claim that racial inequalities do exist in the hiring of virologist in KwaZulu-Natal. Therefore, whilst we may have established that racial imbalances exist in the field of anatomical pathology, we can not say the same for virology.⁴

5.2.2.10 Age

Age is also a determinant in the retention and recruitment of medical laboratory specialists in South Africa. It is easier for medical laboratory specialists to leave when they are young and have not established themselves in the South African labour market. This is the stage where most specialists develop intentions of emigrating because this is a stage where they are less bound by or tied to any form of obligations. By obligations, I am implying those young specialists that have just graduated, do not have any family obligations and are in fact more mobile (Interviews 2011, Dr Pather). Those that have already started establishing families are still young families, and are better adaptable to new conditions. Hence, age affects the retention of medical laboratory specialists, because specialists make decisions earlier in their life to migrate because they, as

⁴ However, official statistics demonstrates that racial imbalances do exist nationally in the employment of virologists, by showing that there are only two African virologists out of twenty-eight in South Africa.

well as their young families, are able to adapt far better to new conditions (Interviews 2011, Dr Pather). It is more difficult for an older medical laboratory specialist who already has an established job to migrate, therefore we find that majority of the respondents in this study indicate that they would have migrated if they were younger. In addition, this also signifies a trend or transformation from earlier migration patterns. Previously, in the 1970's, medical laboratory specialists have left later in their careers (Interviews 2011, Dr Pather). However, now we find that there has been a shift from that trend where they now migrate earlier in their careers (Interviews 2011, Dr Pather). There are even examples of medical laboratory specialists currently in KwaZulu-Natal, who have indicated that they would have migrated if they were younger. One of the participants of this study said:

"I want to stay here for the duration. ok. But I am 59 years old. I might have a different view if I were younger. But me personally, I am not leaving here before I stop working." (Interviews 2011, Dr Van Vuuren)

A virology registrar interviewed in this study expressed that age is certainly a factor affecting the retention and the recruitment of medical laboratory specialists in South Africa. Medical graduates in general spend an average of six years of their life attaining tertiary qualifications. Unlike other teenagers or young adolescents who spend the immediate years after their schooling life socialising and meeting new people, they spend this time studying. This implies that they start their social development and adolescents at a later period than other teenagers do. Medical graduates in South Africa leave university at an average age of 24, which is the time that they begin their social development. However, at this period, they have less life commitments or commitments to remain in South Africa. Hence, they begin their social development by emigrating and experiencing new lifestyles abroad because their age permits them to do so (Interviews 2011, Dr. Essop). A virology registrar commented:

"So they sort of start their social development much later than the normal adolescent population. So at that time, younger people are unmarried or newly married and have no children so their commitments to stay in South Africa is much less. Its easier for a younger person who is unmarried or newly married to migrate to another country and you know experience there, whereas older qualified doctors have a family by now, they have children, they have commitments. So I think that is one of

the things that has led to a lot of old people, even if they wanted to go abroad, have been restricted by the fact that they have now started a family and have settled in and its now hard to uproot and move.” (Interviews 2011, Dr. Essop)

Additionally, South Africa experiences an outflow of younger specialists than older specialists due to the migration of young graduates being „fashionable.“ The emigration of young medical laboratory specialists from South Africa makes it an attractive fashionable movement to be followed by other young medical laboratory specialists in the country. A respondent of this study asserted that young specialists often follow the paths of their colleagues that have migrated because it „would seem like the going of the time“ (i.e. fashion) (Interviews 2011, Dr. Essop). Hence, young specialists emigrate because they find it as an opportunity to tour and experience new social lifestyles.

Therefore, we note that age affects the retention and recruitment of medical laboratory specialists in South Africa in two ways. Firstly, it is easier for younger specialists to migrate than it is for older specialists to because younger specialists have less commitments and sacrifices to make when they leave the South African labour market. Secondly, due to the number of years spent immediately after their schooling careers, medical graduates begin their social development much later than normal teenagers and adolescents do. Therefore, they spend their delayed adolescents emigrating and experiencing new lifestyles abroad. Thirdly, we also noted that young medical laboratory specialists emigrate from South Africa because emigration is regarded as fashionable and an opportunity to tour and explore new social lifestyles (Interviews 2011, Dr. Essop).

5.2.2.11 Employment Capacity

The employment capacity of KwaZulu-Natal’s laboratories is also a factor resulting in the shortage of medical laboratory specialists in South Africa. By employment capacity, I am referring to the limited capacity for the country to provide sufficient employment for medical laboratory specialists. However, important to note is that this factor explains the shortage of virologists, but does not explain the shortage of anatomical pathologists.

Whilst they may be a small number of virologists in South Africa, KwaZulu-Natal's virologists assert that increasing the number of virologists in the population and country at large would be of no benefit to healthcare because the country does not have the capacity to employ many more virologists than it already does. The country as we have gathered, is not expanding its use of virologists which limits the scope and the number of virologists it employs. At the current status, it is quite difficult for virologists to find employment in South Africa due to the small demand for these specialists (Interviews 2011, Dr. Butler). Unless the South African health sector, especially the private sector creates more opportunities to employ virologists, the country will continue experiencing the international emigration of these specialists, as well as virologists migrating out of the speciality. A respondent of this study commented on this matter:

"There doesn't seem to be so many jobs for virologists. So they are not creating posts for virologists to fill. So at the moment its very difficult to find a job. Because you can't find a job in the private sector, there are only a few virologists in the private sector and you can't find jobs in the laboratories because they don't create the posts." (Interviews 2011, Dr. Butler)

This is actually a deterrent to the field which affects the retention and recruitment of virologists in KwaZulu-Natal. Students graduating from medical school often take on specialities that allow them a greater ability of attaining a job on the completion of their training. Virology due to its limited scope and employment capacity is rarely considered an option. The same respondent added:

"There are people that want to enter into the laboratory sometimes take the other disciplines because there is a bigger chance of getting jobs in the private sector. That is the first point. The second point maybe there is not so many positions in the government that they can apply for as well. So its your future that is difficult to determine when you go into virology because you don't know quite, there is no mapped out career path." (Interviews 2011, Dr. Butler)

Another virologist stated:

"I think that could be one way in order to prevent qualified virologists from leaving to go abroad. But I think the problem is going to arise in that unless the private

sector seeks to take on these virologists, they are going to move from the field of virology into other fields. Like there are a lot of virologists that are now qualified and trained as virologists but are delving into microbiology purely because there is no scope for them out of the public sector and because the private labs are not taking them on. So they have been required to expand their field. So it is limiting virology to a certain degree.” (Interviews 2011, Dr. Essop)

Therefore, the example of virologists signifies that South Africa as a whole fails to realise that it experiences a shortage. The previous factor on the limited role of virologists indicates that the country does not utilise its medical laboratory specialists to their optimal benefit. This however, does not imply that the small number of specialists in the country is suffice in providing effective and efficient laboratory services. More specialists are required, but the country fails to create the capacity to accommodate for the employment of more. The example of virologists provided in this section indicates the country’s failure to create sufficient employment opportunities for these specialists. This in turn leads to a crisis in the retention and recruitment of these specialists because they take on other specialties that have a greater employment scope and capacity.

5.2.2.12 Service Delivery

Service delivery also falls amongst the social factors that affect the retention and recruitment of medical laboratory specialists in South Africa. Whilst the role that this factor plays may not be as large as a role that crime plays, it still constitutes a social factor that forces medical laboratory specialists to leave the South African labour market. Concerning service delivery, there has been an overall decline in most of the state’s services: electricity, home affairs, security, transport, schooling, and healthcare services (Interviews 2011, Dr Pather). There have been numerous reports and protests from South African citizens concerning poor and ineffective services. Examples of these are protests that the country experienced in response to the following poor services: load shedding, poor quality of schooling, lack of effective healthcare, crime, and poor road safety and vehicle worthiness (e.g. minibus taxi’s). There is a general notion that all service delivery in South Africa, from transport to healthcare, is poor (Interviews 2011, Dr Pather). This has constituted as a factor affecting the retention of medical laboratory specialists in South Africa because it has pushed many anatomical pathologists and virologists to migrate.

To further elaborate, a virologist interviewed expressed the following views on South African service delivery:

“The standards of services in term of basic services that need to be in place are not optimal. I mean if you live overseas its very different. If things are not working you get someone and they fix it. Here it very seldom gets done that way. Security, you can think of any service, I mean, say I am on medical aid I will never think of going to a government clinic. If I had a wound I would probably stitch it myself. So its the basic, its not like that overseas. If you live in the US you can go to any doctor and get good care. Here there are a whole lot of things you can’t do. You can’t walk in the middle of the night on the streets here.” (Interviews 2011, Dr. Kazi)

These professionals migrate to countries such as the United Kingdom for example, for better living conditions. It has been noted that healthcare professionals in more developed countries such as the United Kingdom, find higher standards of education for their children, excellent and very efficient transport systems, and effective healthcare provision (Interviews 2011, Dr Pather). Therefore, whilst poor service delivery in South Africa does not play a large role as other social factors such as crime does, it still negatively affects the retention and recruitment of medical laboratory specialists in South Africa by forcing specialists to migrate in search for better living conditions.

From the above, it is apparent that the failure to retain and recruit medical laboratory specialists is an outcome of a combination of economic as well as social and political conditions in South Africa. What is more apparent is that social and economic factors constitute a larger role than economic factors do. From the economic factors, it has been deduced that the only factor affecting the retention and recruitment of medical laboratory specialists in South Africa is salary. This factor however, has a limited impact in the mobility and emigration of these specialists because South African salaries are comparable, if not higher, than most first world countries that medical laboratory specialists migrate to. Therefore, we note that the failure to retain and recruit these specialists in South Africa is due to a broad range of social and political conditions found in South Africa. Moreover, apart from being based mainly on social and political conditions, another important point that emerges from this section is that the factors affecting the retention

and recruitment of these specialists can be categorised as on-the job as well as off-the job factors. By saying this, I am implying that the retention and recruitment of these specialists are not only affected by conditions found within the employment of these specialists or medical laboratory disciplines. The retention and recruitment is also based on conditions found external to the employment or work settings of these specialists. Therefore, we find that factors such as: crime; service delivery; exposure; to mention a few, affect the retention and recruitment of South African medical laboratory specialists. These points will make sense in the following chapter which uses the human relations, human capital and job embeddedness theories to explain why there were more social and political, and on-the job as well as off-the job factors found affecting the retention and recruitment of medical laboratory specialists in South Africa.

5.3 CONCLUSION

This chapter began with an assessment of the shortage of medical laboratory specialists in South Africa, as well as the consequences that the shortage has on healthcare in the country. Concerning the shortage, it has been assessed that the country on a whole experiences a significant shortage of anatomical pathologists in the public and private healthcare sectors. To be able to effectively provide laboratory services, the country requires at least double the number of anatomical pathologists that it currently has. South Africa also experiences a shortage of virologists. Whilst the current number of virologists is sufficient in providing virology services in manner that the country does, there is still a shortage of virologists. This is because virologists need to be fully utilised, which will require the country to produce and employ more of these specialists. More over, this chapter has also indicated that the shortage is not unique to anatomical pathology and virology alone, but to medical laboratory specialties on a whole. None of the medical laboratory specialities in South Africa have achieved the capacity of specialists it needs.

With regards to the consequences, this chapter has emphasised that the shortage of specialists has significant negative implications on South Africa's healthcare systems. From the consequences reported, it has been noted that the shortage of medical laboratory specialists in South Africa does not only lead to a deterioration in the quality of the country's healthcare and laboratory

services, but also facilitates the inequalities in access to healthcare. These implications provide a motivation to understand the causes behind the shortage of these specialists in South Africa.

This chapter has fulfilled this by assessing the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. These factors were the reasons behind the country's failure to retain its specialists, in addition to the failure to recruit new graduates to medical laboratory specialities. From the factors outlined in this chapter, firstly, it is apparent that social and political factors played a larger role in the retention and recruitment of these specialists. Secondly, it is also apparent that the push factors from South Africa play a larger role in the emigration of these specialists than the pull factors (i.e. attractions found in countries specialists migrate to) do. This was emphasised by Arnold & Lewinsohn (2010) whose study on South African doctors indicated that it was not actually pull factors or attractions of other countries that caused doctors to migrate out of South Africa; it was more the push factors from South Africa that forced the emigration of these doctors (Arnold & Lewinsohn, 2010). The socio-political conditions found in South Africa are the main drivers of medical laboratory specialists out of the country. The role that the push factors play in the emigration of South African medical laboratory specialists was also emphasised by a former South African pathologist who is currently practising in the United States. When questioned about whether the attraction (i.e. pull factors) of other countries play a role in the migration of South African medical laboratory specialists, he stated:

"No it was push factors. Most of the guys I know it was push factors. It was discontentment with the issues within the country and you can take your pick, a range of issues from corruption to mismanagement, to you know a variety of issues."

(Interviews 2011, Dr Manderee)

In addition to this, it has also been noted that these factors were a combination of conditions found within the employment of these specialists, as well as conditions found external to their employment. The pre-dominant factors derived from participants of this study that largely affect the retention and recruitment of medical laboratory specialists are: crime, exposure, service delivery, international recognition of skill, and career enhancement. Salaries on the other, hand

were not found to be a factor that largely affects the retention and recruitment of these specialists.

CHAPTER SIX

THEORISING THE LABOUR MARKET FOR SOUTH AFRICAN MEDICAL LABORATORY SPECIALISTS

Chapter three of this thesis indicated the significance of the human relations, human capital and job embeddedness theories in understanding the factors affecting medical laboratory specialists in South Africa. This chapter aims to emphasise this significance by indicating that these factors can be best understood through the use of these theories. The primary objective of this thesis is to derive at the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. Section two of chapter five fulfils this objective by describing and explaining the factors that negatively affect the retention and recruitment of anatomical pathologists and virologists in KwaZulu-Natal, which have been extended and generalised to the South African medical laboratory specialists' population. This is however, insufficient for understanding the labour market for medical laboratory specialists.

Whilst the factors have been provided in section 5.2, there was no understanding provided on why these constitute as factors. Neither was there an understanding of why certain factors affect the retention and recruitment of medical laboratory specialists more than other factors do. This chapter aims to overcome this gap by explaining these factors through the use of the human relation, human capital and job embeddedness theories. Haas (2008) suggested that a limitation in migration research is the tendency to investigate the reasons, causes, and consequences of migration in alienation from theories. He believes that the reasons behind migration and its consequences can not be adequately understood without the use of theory. The use of a single theoretical perspective allows for a deepened understanding of migration (Haas, 2008). Similarly, because this study largely deals with the factors that facilitate the migration of South African medical laboratory specialists; the human relations, human capital and job embeddedness theories allow for a deepened understanding and explanation of these factors.

6.1 HUMAN RELATIONS THEORY

Section 5.2 described the factors that negatively affect the retention and recruitment of medical laboratory specialists in KwaZulu-Natal. The factors provided were categorised as either

economic factors, or social and political factors. The intention behind doing so is to understand which factors play a greater role in the retention and recruitment of South African medical laboratory specialists. From the economic factors, we note that the only factor that affected the retention and recruitment was salaries. However, from the social and political factors provided these are summaries of the factors affecting the retention and recruitment found:

1) *Recognition*: South Africa does not sufficiently recognise the contribution of medical laboratory specialists towards healthcare. Specialists migrate abroad in search for their input and expertise to be better recognised.

2) *Exposure*: The lack of exposure given to laboratory disciplines facilitated the recruitment and retention of medical laboratory specialists. Medical graduates were not exposed to medical laboratory disciplines and did not know they existed as fields to specialise in.

3) *Career enhancement*: Medical laboratory specialists migrate in search for better career opportunities. Important to note is that South Africa does allow certain career opportunities such as furthering one's studies. However, the international labour market offers these specialists career opportunities that are not available in South Africa. For example, anatomical pathologists emigrate to become super specialists. Virologists on the other hand, migrate to experience a larger and different spectrum of diseases.

4) *Compulsory Service*: Medical laboratory specialists are required to work for the immediate 2 years after they have qualified. This however, has created feelings of hostility in which specialists have resorted to emigrating in response to feelings of hostility. In addition, medical students were deterred from laboratory specialities due to them being bound to work in the South African public health sector.

5) *Race*: Race plays a role in the recruitment of South African medical laboratory specialists. Whilst there was mention of indirect forms of discrimination, we noted that race constitutes as a factor due to the personal preference of certain races in South Africa. The shortage of African medical laboratory specialists was due to the personal preference of these individuals to practice immediately after they qualify from medical school.

6) *Service Delivery*: Medical laboratory specialists emigrate from South Africa in response to the country's poor service provision, in areas such as: water, electricity, healthcare, safety, and

transport. Specialists have migrated to countries such as the United Kingdom for example, that offer more efficient basic services.

7) *International recognition of skill*: The skills of South African medical laboratory specialists are attractive and demanded globally. South African medical laboratory specialists may not possess qualifications that are internationally recognised, yet their skills are.

8) *Children's education and future employability*: Specialists emigrate because they feel that the education system is not up to standard in South Africa, and also due to the poor employment prospects for their children.

9) *Crime*: Specialists migrate in response to the crime rate in South Africa. Migrate in search for safer havens for families.

10) *Age*: A determinant in the migration of South African medical laboratory specialists. A larger number of younger specialists are lost from the South African healthcare system because they are more mobile than older specialists (due to adolescents, social development and less commitments and obligations).

11) *Employment capacity*: South Africa's healthcare system does not have the capacity to employ the number of medical laboratory specialists that it actually needs to provide efficient laboratory services.

Whilst it is apparent that there are more social and political conditions than economic conditions affecting the retention and recruitment of medical laboratory specialists in South Africa, there has been no explanation provided as to why social and political conditions play a larger role than economic conditions, in the retention and recruitment of these specialists. This however, can be understood and explained through the human relations theory. Before assessing this, it is important to understand the intention behind the use of the human relations theory (as well as the human capital and job embeddedness theories) in this study. It has already been noted that these theories are used in this study to explain the factors affecting the retention and recruitment of medical laboratory specialists. The overall intention however, is directed towards the overall or broader objective of this study, which is to make a contribution towards creating a sustainable, effective and efficient healthcare system in South Africa. The use of these theories allow for this, because understanding *why* certain factors play a larger role than others will assist South Africa's

healthcare system in addressing the appropriate factors to sufficiently retain and recruit medical laboratory specialists in the country. We have already assessed the failure from the healthcare system in retaining these specialists through addressing incorrect or irrelevant factors such as salaries (through wage increases and scarce skill salaries). Another example is the two year compulsory service for the National Health Laboratory Service. While this was regarded as a strategy to retain specialists, the feelings of hostility that it has created translated it into a strategy that actually facilitates the failure to retain specialists.

Therefore,, we note that the healthcare system does not actually understand the factors facilitating the loss and shortage of these specialists; neither does it have knowledge of how to address these factors. However, the use of these theories overcomes this by assisting the healthcare sector in understanding the actual reasons behind the loss of medical laboratory specialists in South Africa, so that they can successfully address the appropriate factors that facilitate the failure to retain and recruit these specialists. Simply put, the use of these theories will allow South Africa in addressing the actual factors affecting the retention and recruitment of medical laboratory specialists.

The primary argument of the human relations theory is that workers are not only motivated through financial or other economic rewards. Rather, workers are more motivated through a broad range of social factors. These factors include: recognition, group harmony, communication, appreciation; a sense of belonging; pride in one's work; etc (Rose, 2005). Organizations benefit by ensuring that their employees' social needs are addressed (Rose, 2005). The example that was used in chapter three to illustrate this was the Hawthorne lighting experiment which illustrated that workers were motivated through an upliftment in their working conditions (i.e. lighting), which indicates the role that social factors constitute in the motivation and well being of workers. Similarly, medical laboratory specialists are motivated greater through social factors rather than economic factors. The mobility of these specialists (i.e. the failure to retain and recruit them) is actually a product or outcome of social factors, and not economic factors. Concerning economic factors, it has been derived that the salaries that medical laboratory specialists attain meet their personal expectations. Besides this, there has also been an overall wage increase for all medical laboratory specialists. Despite their contentment with their

salaries in addition to the overall increase, South Africa still experiences a large outflow of these specialists to the international labour market, as well as failing to attract new graduates to medical laboratory specialties.

To reiterate, the role of social factors on the other hand, is much larger and influential in the shortage of medical laboratory specialists. This study has shown that there are 11 pre-dominant social factors that affect the retention and recruitment of medical laboratory specialists: crime; career enhancement; recognition; exposure; age; race; international recognition of skill; employment capacity; service delivery; children education and future employability; and compulsory service.

Besides these social factors constituting a larger number of the factors affecting the retention and recruitment, the extent to which they affect the retention and recruitment of these specialists is also larger. From above mentioned factors, factors such as crime; exposure; career enhancement; are social factors that all play a larger role in the retention and recruitment of medical laboratory specialists. Of these, crime; exposure; recognition and career enhancement were the social factors that were the most important, that pushed South African specialists to migrate overseas or to other healthcare disciplines. Concerning crime, it was noted that all respondents mentioned crime as the main driver of medical laboratory specialists out of South Africa. Specialists have moved to other countries that were considered safer havens for them and their families. Concerning exposure, the lack of exposure given to medical laboratory specialists was the main reason behind the failure to recruit new graduates to medical laboratory specialties. Graduates were more attracted to disciplines that they were familiar with and exposed to such as paediatrics, for example. With regards to recognition, South African medical laboratory specialists have migrated to countries and healthcare systems in which their contributions and expertise could be recognised. The South African labour market did not offer these specialists any form of recognition, hence they have migrated in search for better recognition. Concerning career enhancement, we note that medical laboratory specialists migrate to countries that offer more career opportunities.

From the above, it is apparent that social factors (mainly crime; career enhancement; exposure; and recognition) play the largest role in the failure to retain and recruit medical laboratory specialists. The explanation to this can be found within the human relations theory which asserts that workers are more motivated through social and political factors rather than economic factors. Hence, we note that salaries, as adequate as it may be, play a very limited role in the failure to retain and recruit medical laboratory specialists. Rather, social and political factors are the prime reasons behind the mobility and shortage of these specialists in South Africa. We note that South African medical laboratory specialists are motivated through factors such as: career enhancement; recognition; and exposure.

A limitation of the human relations theory in this study however, is that it only explains the social conditions that negatively affect the retention and recruitment of medical laboratory specialists found within their workplaces. By saying this, I am implying that it excludes external factors such as crime and service delivery, that exist outside the working environment. These factors however, will be explained through the job embeddedness theory. Therefore,, the human relations theory still holds a significant importance in understanding the labour market for medical laboratory specialists by allowing for an understanding of why the social factors (i.e. career enhancement, compulsory service, recognition, and exposure) affect the retention and recruitment of medical laboratory specialists more than economic factors such as salaries. The importance of knowing this goes beyond just understanding why certain factors affect retention and recruitment more than others. The true importance of using the human relations theory for explaining the labour market for South African medical laboratory specialists is so that the country's healthcare sector will successfully retain and recruit its specialists by understanding the factors that cause specialists to migrate.

6.2 HUMAN CAPITAL THEORY

The human capital theory is another theory used in this thesis to explain the prevalence of social factors in the retention and recruitment of medical laboratory specialists in South Africa. However, like the human relations theory, the human capital theory also has limitations in explaining why social factors out weigh economic factors in the retention and recruitment of these specialists. The limitation of this theory found in this section is that it only explains the

social factors that are linked or related to the skills, expertise and academia of medical laboratory specialists. Apart from explaining why academic factors affect the retention and recruitment of medical laboratory specialists, this section also aims on explaining the consequences that the country experiences regarding the loss of human capital (i.e. the skills of medical laboratory specialists).

To reiterate, the human capital theory emerged as an attempt to explain previous theories that have tried to explain the prevalence of wage differentials between different types of employments and employees, as a product of one's human capital (Marshall, 1998). The term „human capital“ as noted in chapter three is defined as the amount of knowledge; skills; abilities and capabilities that an individual possesses, that can be used economically to raise his/her salary or job status.

The extent to which this theory explains the labour market for medical laboratory specialists in South Africa can be found by the study conducted by Taylor & Edward (2001) found in chapter three of this thesis, which assessed the motivation behind the loss of human capital through migration, and the consequences that this has on the country or place that loses human capital. Concerning the motivation behind the mobility of workers they showed that employees that possess more human capital (more skill) are more likely to be chosen to migrate (due to the demand for their skill). This is based on their finding which showed that workers are „chosen to migrate.“ Their study found that it was the younger and better educated employees that tend to migrate. Rural citizens with the most human capital (i.e. skills) were found to be the largest population to migrate due to the demand for their skills in urban areas (i.e. organizations) (Taylor & Martin, 2001).

By applying this to the labour market for medical laboratory specialists, we understand that the mobility or migration of South African medical laboratory specialists is based on the human capital that these individuals possess. This explains the social factor affecting the retention and recruitment of medical laboratory specialists in South Africa concerning the international recognition of their skill. Medical laboratory specialists are „chosen“ to migrate because the human capital (i.e. skills) that they possess is internationally attractive and recognised. Countries

recruit South African specialists because they understand that the skill that these specialists possess is sufficient for maintaining their healthcare systems. Babalola (2003) indicated that for organizations to experience economic benefits through the full utilization of its employees, it is important that the organization contributes large investments towards human capital to increase the productivity, efficiency and motivation of workers by providing them with new skills. (Babalola, 2003). He believes that the human element and not the capital or technological resources, determines economic success (Babalola, 2003). Therefore, we note that South African medical laboratory specialists (due to their human capital) migrate to, and are recruited by other countries to overcome the shortage of healthcare professionals in those countries, as well as to create and sustain an effective and qualitative healthcare system.

The human relations theory also refers to the choices that workers make regarding their human capital investment. In chapter three of this study, Becker (1964) shows that workers decisions around their personal investment in human capital often include the attractiveness towards jobs that offer human capital investments (that would increase their future income) over jobs with less or no human capital investments. Therefore, workers are also to a certain extent decisive of their human capital by moving to jobs that are more favourable towards education and training opportunities (Marshall, 1998). Concerning South African medical laboratory specialists, it has been derived that career enhancement was a social factor that largely affected the retention and recruitment of South African medical laboratory specialists. The human capital theory explains why this constitutes as a factor. Although South Africa does allow human capital enhancement opportunities such as furthering one's studies, the country still experiences an outflow of a number of medical laboratory specialists for better career opportunities. Specialists have migrated from the South African healthcare system to countries that offer career opportunities that South Africa does not. For example, regarding anatomical pathologists, it was found that South Africa does not allow these specialists to become „super specialists,“ hence a number of South African anatomical pathologists have migrated because this opportunity was available abroad. A super specialist, as mentioned in chapter five of this study, refers to an anatomical pathologist specialised in a certain area pathology. For example, a super specialist could refer to an anatomical pathologist being specialised in biopsies only. Concerning virologists, it was noted that these specialists migrate out of South Africa to experience a broader spectrum of diseases.

Hence, here we gather that South African medical laboratory specialists migrate for better career opportunities. This is explained by the human capital theory which shows that workers tend to migrate to jobs and labour markets that are more favourable to human capital opportunities. By South African medical laboratory specialists migrating due to career opportunities, their migration is considered a personal investment towards their human capital.

Lastly, besides explaining why social factors affect the retention and recruitment of South African medical laboratory specialists more than economic factors do, the human capital theory also explains the consequences that the loss of human capital has in South Africa. In chapter three of this thesis, Marshall (1998) emphasised that the loss of human capital from an industry or economy, implies a loss of indispensable skills and talent. In certain instances, these losses may be covered through replacements, but are often irreplaceable or really difficult to replace. Therefore, when organizations and economies lose human capital, they are simultaneously losing their productivity, profitability and competitiveness (Marshall, 1998). By considering the consequences outlined in section 5.1.2 of chapter five, this explains why the South African healthcare sector is severely impacted by the loss of medical laboratory specialists. Because these specialists are highly trained and difficult to replace, the loss of their human capital from the country's healthcare sector creates imbalances in the effectiveness, efficiency and quality of laboratory services in South Africa. Therefore, the loss of human capital mainly affects: the quality of laboratory services in South Africa; the efficiency and turn around time in healthcare; and the workloads of South African laboratory specialists that have remained behind in South Africa.

In conclusion, the human capital theory emphasises the role that social factors play in the retention and recruitment of medical laboratory specialists by showing the importance that human capital has in understanding the labour market for medical laboratory specialists. Due to the human capital that these specialists possess, we find that social factors such as the international recognition of skill and career enhancement play a significant role in the retention and recruitment of medical laboratory specialists greater than economic factors such as salaries. Once again, this is explained by the human capital theory which contends that the skills, abilities and talents of workers are crucial in understanding the work experiences, motivations, and labour

market for employees. Besides explaining these factors, the human capital theory also signifies the importance of this study by providing an explanation for the consequences that the country's healthcare system experiences. The consequences as noted are not merely due to the loss of medical laboratory specialists. Rather, it is due to the irreplaceable loss of the human capital that these individuals possess. Therefore, the loss of their human capital was found to have severe implications on healthcare in South Africa.

6.3 JOB EMBEDDEDNESS

Similar to the human relations and human capital theory, the theory of job embeddedness also suggests that workers are motivated to remain in their jobs for reasons that go beyond financial incentives (e.g. salaries) (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). However, job embeddedness goes a step further. The theory asserts that whilst there are more social than economic factors affecting the retention of employees, for organisations to successfully retain its employees, it also needs to consider the factors that are situated outside of one's workplace. As noted in chapter three, the founders of the theory argue that workers remain in their organizations because they feel a sense of belonging to a social web. These social webs however, consist of relationships that extend beyond the working environment into society. Therefore, the theory believes that for employees to be successfully retained in their positions, organizations are required to consider the factors that affect the retention of employees on the job, as well as external factors (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). By saying this I am implying that organizations need to consider both on-the job as well as off-the job factors that motivate workers to remain or abandon their positions in organizations.

In section 5.2 of chapter five, we acknowledged that there were more social factors affecting the retention and recruitment of medical laboratory specialists in South Africa. These social factors however, are a combination of both on-the job as well as off-the job influences. Therefore, we note that the failure to retain and recruit South African medical laboratory specialists is a product of factors found in the employment of these specialists, as well as factors found in the external environment. This can only be explained by the job embeddedness theory which emphasises that a workers decision to remain in his job is dependant on on-the job as well as off-the job factors.

From the on-the job influences that affect the retention and recruitment of medical laboratory specialists, these were the following factors found:

- 1) *Salaries*: The salaries of South African medical laboratory specialists are comparable to the international salaries for these specialists, therefore its influence in the retention and recruitment of these specialists is limited.
- 2) *Recognition*: Medical laboratory specialists migrate to countries that better appreciate and recognise their expertise and input in healthcare. Recognition is not attained in their employment in South Africa.
- 3) *Career enhancement*: Employment in South Africa does allow specialists to pursue career ambitions by furthering their studies. However, specialists migrate for employment and career opportunities that are not available in South Africa.
- 4) *Compulsory Service*: Another on-the job factor that negatively affects the retention and recruitment of specialists in South Africa. The compulsory service requires medical laboratory specialists to work for two years. This however, creates feelings of hostility, pushing specialists to emigrate.
- 5) *International recognition of Skill*: The on-the job skills of South African medical laboratory specialists are globally recognised. This makes them internationally attractive.
- 6) *Employment Capacity*: South Africa's healthcare system does not have the capacity to employ the number of medical laboratory specialists that it actually needs to provide efficient laboratory services.

Concerning the off-the job factors, these were the following factors found:

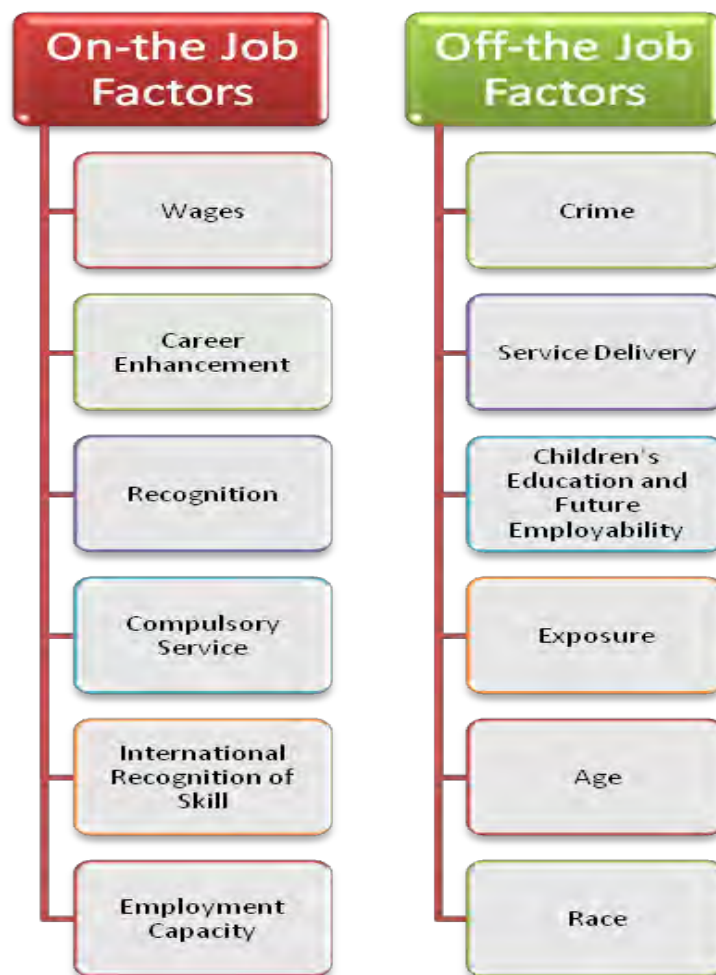
- 1) *Exposure*: An off-the job factor which is the product of South African medical schools' failure to sufficiently expose and create awareness of medical laboratory disciplines.
- 2) *Crime*: A factor found in the external environment that forces medical laboratory specialists to migrate to safer havens.
- 3) *Children's education and future employability*: An off-the job factor emphasising the poor quality of education and the poor probability of employment in South Africa.

4) *Service Delivery*: Medical laboratory specialists emigrate from South Africa in response to the country's poor service provision, in areas such as: water, electricity, healthcare, safety, and transport.

5) *Age*: A larger number of younger medical laboratory specialists migrate out of South Africa. This is due to their later social development in addition to less obligations.

6) *Race*: There are less African medical laboratory specialists in South Africa. The shortage of Africans however, is due to the personal preference of these individuals to practice immediately after they qualify from medical school.

Figure 6.1: Illustrating the On-the Job and Off-the Job factors affecting the retention and recruitment of South African medical laboratory specialists



The importance of understanding how the job embeddedness theory explains the labour market for medical laboratory specialists in South Africa is so that the country's healthcare sector can address the actual problems found in the retention and recruitment of these specialists. It has already been assessed that the country's healthcare sectors have failed to successfully retain and recruit its medical laboratory specialists. Reason being, is that there was no understanding that the factors affecting the retention and recruitment of these specialists extend beyond employment conditions (such as wage for example). For example, there has been no acknowledgement of the role that an off-the job factor such as exposure plays in the recruitment of medical laboratory specialities. If the country adequately exposed medical laboratory disciplines, it would find a larger number of medical graduates specialising in medical laboratory specialists. Hence, job embeddedness provides an explanation for the role that both the on-the job and off-the job factors play in the retention and recruitment of medical laboratory specialists in South Africa. From the above, it is apparent that on-the job and off-the job factors play an equal role in retaining and recruiting these specialists. Hence, if the country wishes to successfully retain its specialists and recruit new graduates to medical laboratory disciplines, it needs to include job embeddedness in its human resource strategies. By saying this, I am implying that recruitment and retention strategies need to acknowledge and address external factors such as exposure and race that facilitate the failure to retain and recruit specialists.

Therefore, job embeddedness does not only provide reasons for the shortage of medical laboratory specialists in South Africa, but also provides the methods that need to be adopted to successfully retain and recruit these specialists. This is because employee retention can not be understood unless organizations and health care providers see job embeddedness as a necessary utility in creating retention plans. However, the success of being able to recruit or retain medical laboratory specialists may be limited. This, as explained by the job embeddedness theory, is because there are external influences such as crime and service delivery as factors that need to be addressed to achieve complete success in retaining and recruiting these specialists. This was put forward by a respondent who said:

"So I acknowledge there is a shortage. But I am not sure if there is anything that we can do about it. We can't sort out the crime and we can't sort out this employment story and education. Its out of our hands." (Interviews 2011, Dr Van Vuuren)

Nevertheless, it is still crucial to see the theory as a necessary utility in creating retention and recruitment strategies for South African medical laboratory specialists. Through the use of job embeddedness, the country's healthcare sector would be able to understand the factors that need to be addressed to achieve success in the retention and recruitment of these specialists.

Additionally, the job embeddedness theory also explains the extent of the out migration of South African medical laboratory specialists. Apart from elaborating on the role that on-the job and off-the job factors play, the theory also suggests that employees are embedded through three key influences: *fit, links, and sacrifice*. These influences determine the extent to which employees are embedded in the „social web“ (Mitchell, Holtom, Lee, Sablinski & Erez, 2001). Whilst there are three influences in the embeddedness of an individual's job, this study is particularly interested in sacrifices alone, because this section aims to explain that the reason behind the large outflow of medical laboratory specialists is due to the minimal sacrifices that are experienced when they emigrate.

To reiterate, „sacrifice“ refers to the material and psychological cost that a person has to incur when he or she leaves a job. Taking into account the factors that we have mentioned in section 5.2, it is evident that there are more benefits than sacrifices that are experienced by medical laboratory specialists who emigrate from South Africa. Specialists that have migrated have found that they have benefited through: safer environments, better recognition for expertise, equal or higher salaries, greater exposure to the disciplines, career enhancement opportunities, better service delivery, greater standards of education and employment for their children, and better employment capacity. Therefore, we find that a large number of South African medical laboratory specialists migrate because there are not many sacrifices that they bear when they leave. Whilst there may be certain sacrifices such as the links that they have with their families or community members, the benefits of migration outweigh the sacrifices.

The more an employee has to sacrifice when he/she leaves his job, the more he/she becomes embedded to his/her job (because losses will be large if the job is abandoned). This explains why age is a factor affecting the retention and recruitment of medical laboratory specialists. In section

5.2, we noted that younger medical laboratory specialists migrate because they have less formal obligations than older medical laboratory specialists. Therefore, because younger medical laboratory specialists have fewer sacrifices, they are more likely to emigrate. On the other hand, we noted that the reason why older medical laboratory specialists remain in South Africa is because they are more embedded in their jobs, implying that the sacrifices that they will bear are much greater. This was emphasised by an anatomical pathologist who expressed that his age is the main reason behind him remaining in South Africa. He stated:

“But I am 59 years old. I might have a different view if I were younger.” (Dr Van Vuuren)

This emphasises that older medical laboratory specialists find it harder to emigrate out of South Africa because they are more embedded in their jobs. The theory of job embeddedness explains this by elaborating that the more sacrifices one has to bear when leaving a job, the less likely he or she will leave. Due to older medical laboratory specialists having more sacrifices to make if they had to emigrate from South Africa, we find a larger number of younger graduates emigrating.

6.4 CONCLUSION

The primary objective of this thesis is to derive at the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. Whilst the factors have been discussed in section 5.2, there was no understanding provided on why these constitute as factors. Neither was there an understanding on why certain factors, such as social factors for example, affect the retention and recruitment of medical laboratory specialists more than other factors such as economic factors do. In addition, there has been no explanation of the retention and recruitment of these specialists being an outcome of a combination of factors found within the employment as well as factors found external to the employment of medical laboratory specialists.

The explanation to this was found in this chapter, in which the human relations, human capital and job embeddedness theories were utilised as theoretical frameworks explaining the retention and recruitment of medical laboratory specialists. The human relations theory showed that South

African medical laboratory specialists are motivated in their employment greater by social and political conditions than economic conditions. Therefore, we find that factors such as career enhancement, compulsory service, recognition, and exposure affect the retention and recruitment of medical laboratory specialists more than economic factors such as salaries does. This explains why the country experiences a large out flow of its medical laboratory specialists regardless of these individuals being the highest paid category in healthcare.

The human capital theory also explains why the retention and recruitment of these specialists are more dependant on social rather than economic factor. This theory however, bases the retention and recruitment of these specialists on human capital by elaborating that workers are more attracted to jobs that offer human capital investments. Therefore, we note that South African medical laboratory specialists migrate abroad in pursue of career enhancement opportunities. In addition, the theory also explains why the international recognition of skill is a factor affecting the retention and recruitment of these specialists. Medical laboratory specialists are „chosen“ to migrate because the human capital (i.e. skills) that they possess is internationally attractive and recognised.

Lastly, job embeddedness describes the labour market for South African medical laboratory specialists by showing that the factors affecting the retention and recruitment of these specialists are a combination of both on-the job and off-the job factors. The theory showed that on-the job and off-the job factors play an equal role in retaining and recruiting these specialists. Concerning the on-the job factors, salaries; career enhancement; recognition; employment capacity and the international recognition of skills were the factors found. On the other hand, crime; service delivery; exposure; age; race; and children’s educational and employability, were the off-the job factors found affecting the retention and recruitment of South African medical laboratory specialists. Hence, the job embeddedness theory asserts that South African medical laboratory specialists are motivated to remain or abandon the South African healthcare system through a combination of on-the job and off-the job factors. If the country wishes to successfully retain its specialists and recruit new graduates to medical laboratory disciplines, it needs to consider and address both these categories of factors (i.e. factors within the employment and external to the employment of medical laboratory specialists).

CHAPTER SEVEN

CONCLUSION

The aim of this study was to assess the factors affecting the retention and recruitment of medical laboratory specialists in South Africa, by conducting a case study on anatomical pathologists and virologists in KwaZulu-Natal. This has been achieved through answering six research questions. These questions are:

1. *What is the labour market for medical laboratory specialists nationally and globally?*
2. *What is the labour market for virologists and anatomical pathologists in South Africa?*
3. *What consequences does the shortage of medical laboratory specialists have on South Africa's healthcare system?*
4. *What are the economic and social factors affecting the retention and recruitment of South African anatomical pathologists and virologists?*
5. *Are there non-work related factors that affect the retention and recruitment of these specialists?*
6. *To what extent do organizational theories such as such as human relation, human capital, and job embeddedness theories explain the nature of the labour market for these specialists?*

In order to answer these research questions, this study has engaged in three key arguments. The **first** of these arguments is *that social factors **play a larger role** than economic factors* (such as salaries) do in the retention and recruitment of South African medical laboratory specialists. This argument has been addressed in chapters two, five and six of this study. Chapter two addressed this argument through an assessment of the national and global labour market for South African medical laboratory specialists. The chapter showed that because medical laboratory specialists belong to the global labour market for South African healthcare professionals, the factors affecting their retention and recruitment are similar to those social factors affecting the retention and recruitment of South African healthcare professionals, healthcare professionals, or professionals in general. However, this argument has been more thoroughly addressed in chapter five of this study which demonstrated that there are twelve factors affecting the retention and recruitment of South African medical laboratory specialists. Of these factors, salary was the only economic factor affecting the retention and recruitment of these specialists. The extent to which

this factor affects the retention and recruitment however, is limited due to the high remuneration of medical laboratory specialists in South Africa. The salaries that these specialists earn in South Africa are comparable, if not higher, than the salaries that medical laboratory specialists earn in first world countries. Therefore, it was found that the retention and recruitment of these specialists are largely based on social conditions found within South Africa. These include: exposure, crime, service delivery, recognition, race, age, working conditions, career enhancement, children's future: education and employment, compulsory service, international recognition of skill, and employment capacity. This emphasises the role that social factors play in the retention and recruitment of medical laboratory specialists in South Africa.

This role has been explained in chapter six of this study which used the human relations and human capital theories to understand why social factors play a larger role than economic factors do. The human relations theory emphasised that workers are motivated in their employment greater by social and political conditions than economic conditions. Therefore, we find that the social factors mentioned above play a larger role in the retention and recruitment of South African medical laboratory specialists" more than economic factors such as salaries does. The human capital theory suggested a similar argument by elaborating that workers are more attracted to jobs that offer human capital investments, rather than jobs that offer economic incentives. Therefore, we note that social factors such as career enhancement and the international recognition of skill affect the retention and recruitment of South African medical laboratory specialists" more than economic factors such as salaries does.

The **second argument** that this study engaged in is an extension of the first argument. Whilst the first looked at the *role* that social factors play compared to economic factors, the second argument separates these factors according to work related and non-work related factors that affect the retention and recruitment of medical laboratory specialists in South Africa. This implies that the failure to retain and recruit South African medical laboratory specialists is an outcome of a *combination on on-the job (i.e. work related) and off-the job (i.e. non-work related) factors*. Chapters five and six have proved this. Whilst chapter five provides and categorises the factors affecting the retention and recruitment of South African medical laboratory specialists into economic and social conditions, chapter six takes this a step further. Chapter six emphasised

that the factors affecting retention and recruitment are not just of an economic and social nature, but should also be noted as work related and non-work related factors. This was explained by the job embeddedness theory which showed that the retention and recruitment of medical laboratory specialists is based on factors found within the working environment of these specialists, as well as factors found in the external environment. Therefore, the theory suggests that the retention and recruitment of South African medical laboratory specialists is based on a combination of on-the job and off-the job factors. The on-the job factors found were: wages, career enhancement, international recognition of skill, recognition, compulsory service, and employment capacity. On the other hand, the off-the job factors found were: exposure to medical laboratory disciplines, age, race, children's education and future employability, and service delivery.

The **third argument** of this study is that it is crucial to *understand the shortage and the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare system*. This argument was addressed in chapters three and five of this thesis. Part one of chapter three assessed the consequences that the shortage of medical laboratory specialists has on South Africa's healthcare system. These consequences have shown to have grave impacts and deteriorating conditions on the country's laboratory services and healthcare in general. Chapter five of this study has extended this argument by demonstrating empirical evidence from participants regarding the impacts that the shortages of medical laboratory specialists have on healthcare in the country. Other than providing the consequences, chapter five has also shown that there is in fact a shortage of these specialists, and that the consequences that the shortage has is not limited to the country's healthcare sector, but extends onto society as a whole. The chapter has shown that the shortage also impacts South African society by increasing the probability of patient deaths and facilitating the inequalities in access to healthcare.

The shortage of medical laboratory specialists and its consequences demonstrate the need to understand the factors that affect the retention and recruitment of these specialists (that leads to the shortage). This study has fulfilled this and has shown that the factors affecting the retention and recruitment of South African medical laboratory specialists are (1) more of a social rather than economic nature, and (2) are a combination of on-the job (i.e. work related) and off-the job (i.e. non-work related) conditions.

7.1 CONTRIBUTIONS

Through an understanding of the factors affecting the retention and recruitment of medical laboratory specialists in South Africa, this study has also made an original, empirical, methodological and practical contribution towards research. These contributions are provided below:

7.1.1 EMPIRICAL CONTRIBUTION

The first significant contribution that this study has made is an empirical one towards many academic disciplines related to the study of work, occupations, and labour markets. These disciplines include: Industrial Sociology, Industrial, Organisational and Labour Studies, Industrial Psychology, Human Resources and Sociology. There has been no research conducted by these disciplines on medical laboratory specialists in South Africa. By assessing the labour market for South African medical laboratory specialists, and demonstrating the factors affecting the retention and recruitment of these specialists, this study is regarded as the first study to research into the medical laboratory field in South Africa. By empirical, I am implying that this study is the first study in the above mentioned disciplines to observe and research South African medical laboratory specialists. It is the only study that assesses the nature of the labour market for these specialists.

7.1.2 THEORETICAL CONTRIBUTION

The theories utilized in this study are: The human relations, human capital, and job embeddedness theories. Whilst these theories are dated and were used in many prior studies, they have never been adopted in any studies regarding the labour market for South African medical laboratory specialists or medical laboratory specialists in general. The human capital theory has been adopted to explain the labour market for healthcare professionals or skilled professions in general, but none of these theories have been adopted in contemporary research concerning medical laboratory disciplines. This study has overcome this by being the first study to utilize these theories to assess and explain the labour market for South African medical laboratory specialists. Through the application of these theories, this study was able to understand and explain the factors affecting the retention and recruitment of these specialists.

7.1.3 METHODOLOGICAL CONTRIBUTION

There have been many studies on healthcare professionals in South Africa. These include qualitative research focusing on the labour market and the international mobility of physicians, dentists, nurses and pharmacists. However, medical laboratory specialties comprise of a neglected field in South African literature. This study is the first qualitative case study on the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. Besides being the first study on retention and recruitment factors, it is also the only study conducted on the labour market for South African medical laboratory specialists. Hence, by being the first qualitative case study on the labour market for these specialists, this study has made a methodological contribution towards South African research. It is the first qualitative case study of South African medical laboratory specialists.

7.1.4 CONTRIBUTION TO DISCIPLINE

The empirical contribution of this study has already demonstrated there has been a contribution made to a number of research disciplines. This was because this study is the first South African study that assesses that nature of the *labour market* for medical laboratory specialists. However, this study is also the only study that assesses the nature of the *occupations* of these specialists. By studying the occupations of these specialists, this thesis also reflects the transformations that have occurred in research, particularly in industrial sociology. This will be demonstrated in the following section that explains the shifts that have occurred within the field of industrial sociology, and the sociology of work.

Transformations in Industrial Sociology and the Sociology of Work.

Industrial sociology is a pre-dominant field of research. Industrial sociology is a field within the sociology of work that has emerged in 1948. The term refers to the study or analysis of social interactions that occur within the workplace. These interactions derive from the relationship between: employees, employers and employees, and departments within a workplace (Luthans, 2008:19). Watson (2008) extends this definition by showing that industrial sociology goes beyond the study of employee interactions. Rather, it also includes the examination and assessment of changes in: technology, national and global labour markets, managerial styles or practices. For Watson (2008) these trends determine the manner in which work is organised, and

workers experience within an organisation (Watson, 2008). Therefore, industrial sociology is also interested in the manner in which workers oppose, challenge and contribute towards shaping their work experiences. In addition, it also encompasses the impacts that these changes have on individuals, families, and societies on a whole (Watson, 2008). This definition of industrial sociology implies that this field of study is broad and encompasses many aspects of the industry as well as entire societies. Previously, industrial sociology focused mainly on the micro and macroscopic levels of analysis in labour. The microscopic levels of analysis of labour referred to the industry and the interaction between systems and subsystems, the “organizational behaviour and is concerned primarily with organization structure and design” (Luthans, 2008:19). On the other hand, the wider and “organizational development tends to be more macro” (Luthans, 2008:19).

However, as industries and organizations continued to evolve, the research of industrial sociologists needed to keep up with the new trends and challenges faced by organizations and industries. Therefore, the research focus shifted from micro and macroscopic levels of analysis to include the meso-scope levels of analysis, implying a movement towards the study of occupations (Burawoy, 2008).

Standing (2009), on the other hand believes that the study of occupations is crucial in social science because it has a significant importance in explaining the changes that have occurred in the world of work after globalization. These changes have all occurred within occupations, and include: collaborative bargaining between occupations, rise in the precariat, growth of professionals, accreditation, licensing, less union ship, and the international migration of professions (Standing, 2009). However, whilst he feels that the study of occupation is important, he believes that it is absent in social research. For example, whilst occupation plays a role in being a significant barrier in the commodification of labour, he believes that it is totally absent from social research. He states that as important of a theme that it may be in the world of work, there are no books or research in general, concerning the study of occupations. He believes that it is on a whole, a neglected field of research (Standing, 2009).

In addition, a key argument of his book is that the need to rethink ideas of freedom and equality within occupations, but can only be done through the study of occupations. However, he believes that because occupation is such a neglected field of research, there will be difficulty in achieving this (Standing, 2009). For example, he states that in the last 199 conventions and 200 recommendations made by the International Labour Organization (ILO) for regulation, there has been no recommendation or mention of occupation, or occupational freedom and regulation. Due to the impacts and influences that occupations have on the changes in the world of work, he believes that it is a rich and crucial area of research (Standing, 2009).

However, whilst Standing (2009) believes that the study of occupation is non-existent in research, there are researchers who concur with the views of Buroway (2008), concerning the shift towards the study of occupation. Gorman & Sandefur (2011) are authors who also reflect the shift towards the study of occupations (particularly professionals) in their study. However, to these authors, the study of professions was evident in research since the mid-twentieth century when the world of work experienced the rise of the „golden age.“ The golden age simply refers to traditional professions such as; architects, scientists, academics, healthcare professionals, engineers, and accountants (Gorman & Sandefur, 2011). They argue that the study of professions was evident since the rise of the golden age, in which researchers and scholars paid a great deal of attention towards the concept of profession. However, in the 1970“s a shift has occurred in which changes have occurred in the professional world of work. Researchers could not keep up with these changes and were slow to articulate them (Gorman & Sandefur, 2011). Hence, there was a shift towards the study of organizational changes such as bureaucracy and the impacts of these changes on organizations. Therefore, this period signified a shift towards the study of organisations and their structures. The study of professional“s occupations on the other hand, became an inactive neglected field of research (Gorman & Sandefur, 2011).

However, as professional workers and skilled work has rapidly grown to encompass a greater proportion of the global labour force in the 1990“s, there has been a renewed interest in the study of occupations. This is due to changing market conditions that have transformed the manner in which professional workers relate to their employment, colleagues, and organisations. Due to these changes, the study of professional occupations was once again, considered an exciting field

of social research. The growing importance of skill and professional workers makes it crucial that researchers renew their interest in the sociology of professional occupations (Gorman & Sandefur, 2011). The renewed and contemporary interest in the sociology of professions is however, still focused and organized around the same themes as the sociology of professions during the golden age. These themes are: expert knowledge, autonomy, income and rewards. *Expert knowledge* simply refers to the study of professional communication, creation and application of expert knowledge in the workplace. Studies focus on the manner in which professionals function to create, produce and share this knowledge (Gorman & Sandefur, 2011). The contemporary study of *autonomy* in research involves the study of the extent to which modern day organisations control, and constraint the autonomy of professionals. During the golden age professional were self-employed and autonomous. However, contemporary professionals are employed by large organisations which impose organisational efforts to control their workers. An example of an organisational effort that tries to control workers can be found in the healthcare sector, where healthcare professionals are controlled in order to create efficiency in their services (Gorman & Sandefur, 2011). Lastly, the study of *income and rewards* revolves around the affiliation between high skilled work, and high social status and rewards (i.e. high salaries and recognition for example). Researchers are interested in the impacts that income and rewards have on the working lives of professionals (Gorman & Sandefur, 2011).

This thesis is a study within the industrial sociology field that reflects all of the above mentioned transformations. Firstly, it reflects the movement towards the study of occupations by focusing on the study of specific workers or occupations (i.e. anatomical pathologists and virologists). However, because these specialists are in fact highly skilled and highly trained, it also contributes towards the study of professionals which is a renewed arena of research in contemporary studies. By saying this, I am implying that this study also reflects the study of professionals which is an area of research that has been brought back into demand due to the changes that have occurred in the world of work. In addition, this thesis also contributes to the study of professionals by focusing on the central themes evident in contemporary research. For example, concerning expert knowledge, this study was interested in the manner in which medical laboratory specialists communicate, create and apply their expertise in healthcare systems. Concerning autonomy, this study showed an interest in the level of autonomy experienced by

these specialists through an understanding of the job conditions, and factors affecting their retention and recruitment. Lastly, the theme of income and rewards was demonstrated by showing that the high income does not have a significant impact on the employment of these specialists, and that social rewards and conditions (such as: recognition and exposure) play a greater role in their employment.

7.1.5 PRACTICAL CONTRIBUTION

Healthcare and Laboratory Services

The shortage of medical laboratory specialists in South Africa has resulted in a number of negative consequences on the country's healthcare services. The reason why the healthcare system experiences these consequences is due to the negligible recognition given to laboratory disciplines. Whilst previous research has illustrated the magnitude of the medical brain drain phenomenon in South Africa, little or no research has been conducted on the shortage of medical laboratory specialists in the country. Studies have also examined the importance of these specialists and the role that they play in the quality healthcare (i.e. importance of laboratory diagnostics in healthcare); however, there still remains a gap in research concerning the reasons behind the failure to recruit and retain these specialists in South Africa.

This thesis overcomes this by being the first and only study of the factors affecting the retention and recruitment of medical laboratory specialists in South Africa. The retention and recruitment of medical laboratory specialists, as shown in chapter three of this study, would result in the eradication of the imbalances evident in the country's healthcare system. Whilst studies have depicted the perception of these specialists as unimportant, it is of crucial importance to understand that for doctors and other medical personnel situated in clinical settings to provide healthcare that is accurate and appropriate, they require the expertise of medical laboratory specialists (Bates & Maitland, 2006). Hence, via understanding the factors behind the failure to retain and recruit these specialists, this thesis makes a significant contribution towards providing effective, accurate, qualitative, and appropriate laboratory services in South Africa. Understanding the factors affecting the retention and recruitment of these specialists would assist the country's healthcare sector in addressing and eradicating these factors through the development of retention and recruitment policy. This would eradicate the negative

consequences that the country experiences due to the shortage of medical laboratory specialists, which would ultimately result in the provision of effective and qualitative healthcare services.

Recording of Statistics

This study has noted that the labour market statistics for medical laboratory specialists in South Africa are either absent or incorrect. For example, chapters three and five have shown that the statistics provided by the Health Professionals Council of South Africa (HSCPA) exaggerate the number of anatomical pathologists and virologists in KwaZulu-Natal. Whilst the HSCPA prevailed that there are twenty-six anatomical pathologists and five virologists in KwaZulu-Natal, this study has shown that there are twenty-three and three respectively. In addition, there has been no recognition of the shortage of these specialists, the number of specialists required, and the number of specialists that have migrated. This as shown, has negatively impacted on policy such as the retention and recruitment strategies for example. Whilst this study only provided an idea of the number of specialists that have migrated, it has still contributed towards the statistical data on medical laboratory specialists by providing: the actual number of specialists in KwaZulu-Natal, and the additional number of specialists needed to provide effective laboratory services. Considering the consequences that the shortage of medical laboratory specialists has on healthcare services in South Africa, it becomes important to keep track of the numbers and mobility of these specialists. This study does so through addressing inaccurate statistics and contributing to overcome absent statistics for South African medical laboratory specialists.

7.2 RECOMMENDATIONS

The ability to effectively retain and recruit medical laboratory specialists in South Africa depends on the healthcare sectors ability to address a series of social conditions within the country. Whilst some of these conditions such as crime; children's future; age; race; and service delivery, are broader issues that can not be addressed by the healthcare sector, there are still a number of steps that can be taken to address other social problems directly related to the medical laboratory disciplines in South Africa. This section comprises of a few of these recommendations.

7.2.1 AWARENESS OF LABORATORY DISCIPLINES

The first step that needs to be taken is to ensure that laboratory disciplines are given sufficient awareness and exposure. This exposure should come from both, the healthcare sector and the institutions responsible for the education and training of laboratory specialists (i.e. medical schools). It is crucial that South African medical schools return to their previous medical curriculum. This curriculum would ensure that laboratory disciplines exist as modules that medical students study in the third year of their undergraduate training. For example, anatomical pathology and virology should be brought back as modules that students could choose. This would ensure that students are given a feel of what medical laboratory disciplines comprise of and would ensure that they know that these specialties are viable options to specialise in on the completion of their undergraduate degree. Additionally, this would also reduce the number of registrars dropping out from laboratory specialties because they would be aware of laboratory disciplines prior to their registrar training. Hence, the provision of laboratory disciplines as modules would mean that the post-graduate registrar training is not the first time students are exposed to these disciplines/specialties.

The awareness and exposure to medical laboratory disciplines should also come from laboratories. Medical laboratories in South Africa should approach matriculants and undergraduate medical students, and provide tours for these students around laboratories. This would create an awareness of medical laboratory specialties, would increase the number of matriculants applying to the medical field, and attract a larger number of undergraduates to specialise in medical laboratory fields (such as anatomical pathology for example).

Lastly, the healthcare sector should provide an indication of the employment scope of medical laboratory specialties and the jobs available in these fields. A large number of young medical graduates do not consider specialising in laboratory fields because they are unaware of the employment scope of these fields. This results in them specialising in fields that could provide them with employment on the completion of their training. The healthcare sector should advertise the jobs and scope available in laboratories. This could be achieved through media advertisements (i.e. news paper job advertisements), as well as through infrastructures created by the healthcare sector. A viable example of such an infrastructure was the intranet provided by the Department of Health which advertised the jobs available in the medical field. South African

laboratories and the country's healthcare sector could create a similar infrastructure so that the jobs available in laboratory disciplines are exposed. The awareness of the shortage of these specialists and the number of jobs available would attract a larger number of medical graduates into laboratory disciplines.

7.2.2 RECOGNITION OF MEDICAL LABORATORY SPECIALISTS

The negligible awareness given to medical laboratory fields and medical laboratory specialists also results in the failure to recognise these fields or specialists. This study has shown that the failure to recognise these specialists includes the failure to recognise their input in healthcare, and from the clinicians and the general public who have no idea of what laboratory specialists are. To promote the recognition given to medical laboratory specialists, the healthcare sector should provide conferences or even simple gatherings such as awards days to congratulate or show gratitude towards medical laboratory specialists for their input in healthcare. This, as simple as it may be, could ensure that specialists do not emigrate in search of better recognition for their expertise.

Concerning the little or absent recognition from clinicians and the general public, the healthcare sector could use a series of awareness techniques to ensure that clinicians and the general public are aware of the expertise and inputs of medical laboratory specialists. An example of this is an awareness day provided to the general public in which medical laboratory specialists could enlighten the general public of what their work comprises of and the role that they play in healthcare. Another awareness technique could be to utilize the media to publish weekly articles on the various medical laboratory specialties so that the general public could educate themselves on the importance of these specialists in healthcare. These articles should include simple diagrams depicting the role of these specialists by illustrating that these are specialists situated at the top of the healthcare hierarchy who advise and offer professional assistance to doctors and clinicians beneath them.

7.2.3. CAREER OPPORTUNITIES

It needs to be emphasised that the South African labour market for medical laboratory specialists does offer these specialists career opportunities. This includes the ability to be research inclined

or to further one's studies. However, there are a few career opportunities that specialists migrate for, that are not available in South Africa. For anatomical pathologists, this includes the ability to become super specialists. In order to eradicate career opportunities as a factor affecting the retention and recruitment of South African anatomical pathologists, the country needs to provide opportunities where these specialists could become super specialists. However, this depends on the number of anatomical pathologists available in South Africa. In the current status of anatomical pathology, I personally do not feel super specialists opportunities is a viable option. This is because the number of anatomical pathologists currently practising in South Africa is too small to allow a portion of these specialists to be specialised and involved in a certain area of pathology only. The country requires all its anatomical pathologists to be generally involved in all pathology areas to assist in providing laboratory services to the country's population. However if the country is able to recruit its desired or rather, required amount of anatomical pathologists, then super specialists opportunities should be available to these specialists.

On the other hand, there is no doubt that there should be more career opportunities created for virologists in South Africa. It is essential that the country begins to realise the need to fully utilise virologists' expertise in healthcare. This should include an expanded use of these specialists whereby they are included in the effective maintenance and control of virology conditions found in South Africa. Chapter five of this thesis assessed the need to increase the use of these specialists. To reiterate, this entails a move from providing a purely consultative service that is focused around service delivery, towards the effective management of patient health in South Africa's healthcare. This means that virologists should be consulted on all virology conditions and issues in South Africa, and they should be allowed to offer their expert advice on the maintenance of these conditions. An example used in chapter five was the need to consult virologists during international events such as the FIFA world cup. In addition, to achieve the effective maintenance of virology conditions, the country needs to offer more research and teaching opportunities to these specialists.

The expanded role of virologists however, can not be achieved unless the country increases its employment capacity for these specialists. A large part of the failure to attract graduates to virology is due to the limited employment capacity. However, if South Africa's healthcare

system understands the crucial need to expand the use of these specialists, it will at the same time increase the employment capacity so that it can employ a larger number of virologists to be effectively utilised in healthcare. Hence, expanding the use of virologists addresses two factors affecting the retention and recruitment of these specialists: career enhancement opportunities and employment capacity.

7.2.4 ERADICATION OF COMPULSORY SERVICE

In addition, if South Africa successfully addresses the factors affecting the retention and recruitment of medical laboratory specialists, there would be no need to retain these specialists by compelling them to serve the first two years of their careers for the National Healthcare Laboratory Service. Through addressing problems such as poor career opportunities, poor recognition, and poor exposure to laboratory disciplines; medical laboratory specialists would find the South African labour market more attractive. Hence, there would be no need to forcefully retain them temporarily through two years of compulsory service. Additionally, this would remove the feelings of hostility that young graduates experience due to the compulsory service, and the country would find that this would also be eradicated as a factor affecting the retention and recruitment of these specialists.

The consequences that the shortage of medical laboratory specialists have on South Africa's healthcare system provides an immediate need for the country to successfully retain and recruit these specialists. However, it has been noted that the complete retention and recruitment of these specialists depends on the eradication of a range of social factors. It may be more difficult to eradicate broader social factors such as crime, international recognition of skill, children's future, service delivery, age and race. However, this section has demonstrated ways of addressing the more immediate social factors such as: exposure to laboratory disciplines, recognition, career enhancement, compulsory service, and employment capacity. The recommendations provided in this section assists in overcoming these factors which would ultimately result in the retention and recruitment of a larger number of medical laboratory specialists in South Africa.

REFERENCES

- Adepoju, A. (2006). *Recent trends in international migration in and from Africa*. Nigeria: Human Resources Development Centre.
- Allsop, J., Bourgeault, I. L., Evetts, J., Bianic, T. S. et al. (2009). Encountering Globalization: Professional Groups in an International Context, in *Current Sociology*. 57 (August) pp. 487-510.
- Andrea, B., Noie, N., Holladay, B. & Bugbee, A. (2009). Wage and Vacancy Report: Laboratory Workforce Shortage Reaches Crisis, in *American Society for Clinical Pathology*. 40 (3) pp. 133-141
- Arnold, P. C. & Lewinsohn, D. E. (2010). Motives for migration of South African doctors to Australia since 1948, in *Medical Journal of Australia*. 192 (5) p. 288-290.
- Awases, M., Gbary, A., Nyoni, J. & Chatora, R. (2004). Migration of health professional in six countries: A synthesis report. *World Health Organization*. World Health Organization: Republic of Congo.
- Babbie, E.R. (2011) *The Basics of Social Research*, Belmont, CA: Wadsworth Publishing.
- Bates, I. & Maitland, K. (2006). Are Laboratory Services coming of Age in Sub-Saharan Africa? In *Clinical Infectious Diseases*. 42(2006) pp. 383-384.
- Beckerling, R. & Brunner, R. (2003). *The lab shortages crisis: a practical approach*. [Online]. 35 (8) pp. 48-50. Available from: www.mlo.com. [Accessed: 03/04/11; 2.00AM]
- Bermeo, S. B. & Leblang, D. (2010) *Foreign Interests: Immigration and the Political Economy of Foreign Aid Allocation*
- Bernard, H. R & Ryan, G. W. (2010) *Analyzing Qualitative Data: Systematic Approaches*. Los Angeles: Sage Publications
- Bersch, C. (2009). The “globalization” of the medical lab. *Going Global* [Online]. Available from: www.mlo.com. [Accessed: 13/05/11; 1.30PM]
- Bersch, C. (2003). Combination of demands sharpens pinch of personnel shortage. *Washington Report*. [Online]. Available from: www.mlo.com. [Accessed: 03/03/11; 1.00PM]
- Bezuidenhout, N. M., Joubert, B., Hiemstra, L. A. & Struwig, M. C. (2009). Reasons for doctor migration from South Africa, in *South African Family Practice*, 51 (3) pp. 211-215.
- Blanckaert, N. (2010). *Clinical pathology services: remapping pr strategic itinerary*. 48(7) pp. 919-925.
- Bourgain, A., Pieretti, P., & Zou, B. (2008) *The Shortage of Medical Workers in Sub-Saharan Africa and Substitution Policy*. Germany: Bielefeld University.
- Burawoy, M. (2008). The Public Turn: From Labour Processes to Labour Movement, in *Work and Occupations* 35 (4) p. 371-387.
- Castells, M (1996) *The Rise of the Network Society*, chaps. 3-4, Oxford: Blackwells
- Chen, L., Evans, T., Prof, S. Anand., & Boufford, J. I. et al. (2004) Human resources for health: overcoming the crisis, in *The Lancet*. 364 (9449) pp.1984-1990.

- Chikanda, Abel (2006), Skilled Health Professionals' Migration and Its Impact on Health Delivery in Zimbabwe, in *Journal of Ethnic and Migration Studies*. 32(1) pp. 667-80.
- Chiswick, B. R. (2011). *High-Skilled Immigration in a Global Labour Market*. Washington, DC: AEI Press.
- Christensen, L. R. (2011) *Research Methods, Design, and Analysis*, University of South Alabama: Pearson
- Clark, P. F., Stewart, J. B. & Clark, D. A. (2006). The globalization of the labour market for health-care professionals, in *International Labour Review*. 145(1-2) pp. 37-64.
- Cohen, R. (1996). *Brain Drain Migration*, Background Research paper prepared for the Green Paper on International Migration, [Online] Available from: www.polity.org.za [Accessed: 02/04/2011; 10.00AM]
- Collins, J. L. (2002). Mapping Global Labour Market. Gender and Skill in the Globalizing Garment Industry, in *Gender & Society*. 16 (6) p.921-940.
- Cresswell, J.W. (2011) *Designing and Conducting Mixed Methods Research*, Los Angeles : SAGE Publications
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches*, Thousand Oaks, California: Sage Publications.
- Czenter, A. (2002). *Labour Market and Globalization: Human Resources Management in Global Enterprises*. Europe: International Formation for Europe.
- Daniels, R. C. (2007). Skills Shortages in South Africa: A Literature Review, in *DPRU Working Paper* 7(121) p.1-44. University of Cape Town: South Africa
- Devraj, J. (2006). International Labour Review, in *International Labour Organization*. 145(1-2) pp.1-5.
- Diesdrich, H. & Thakkar, S. R. (2005). Chicago-area health care workforce shortage Frequently Asked Questions, in *Metropolitan Chicago Healthcare Council*. Available from: <http://www.mchc.org>. [Accessed: 24/04/11; 3.30PM]
- Downey, A. (2010). The impact of an aging population on global healthcare, in *Issues Monitor*. 4(1) pp. 1-12.
- Dzvimbo K. P., 2003. *The International Migration of Skilled Human Capital from Developing Countries: a case study* prepared for the “Regional Training Conference on Improving Tertiary Education in Sub-Saharan Africa: Things That Work!” Accra, Ghana, 1–6.
- Elliott, R.J.R. and Lindley, J. (2006), Skill Specificity and Labour Mobility: Occupational and Sectoral Dimensions, in *Manchester School*, Vol. 74, 3, pp. 389-413.
- Erasmus, J. & Breier, M.(2009). Skills shortages in South Africa: case studies of key professions. Cape Town: HSRC Press. 113-131.
- Erasmus, J. & Hall. E. (2003). The international mobility of health professionals: An evaluation and analysis based on the case of South Africa, in *Trends in International Migration*., Paris: OECD.

- Eskridge, R. (2009). *Physician Retention Strategies-You've Got 'Em, Now, How Do You Keep 'Em?* November 2009. Available from: http://EzineArticles.com/?expert=Robert_Eskridge. [Accessed: 04/04/11; 8.00AM]
- Felbermayr, G., Prat, J. & Schmerer, H. (2008). *Globalization and the Labor Market Outcomes: Wage Bargaining, Search Frictions, and Firm Heterogeneity*. Germany: University of Tübingen.
- Freeman, R. B. (2008). The new global labour market, in *Focus*. 26 (1) p. 1-6.
- Frogner, M. L. (2002) Skills shortages, in *Labour Market Trends*, 110(1) pp. 17-27.
- Garrrott, P. (2008). Clinical Laboratory Practitioners Speak Out on Capitol Hill, in *Clinical Laboratory Science*. 21(3) p. 130-131.
- George, G., Quinlan, T. & Reardon, C. (2009). *Human resources for health: a needs and gaps analysis of HRH in South Africa*. South Africa: Health Economics and HIV/AIDS Research Division (HEARD).
- Globalization 101 (2009) Migration and Globalization, The LEVIN Institute: New York. OECD (2010) Migration and the Brain Drain Phenomena. http://www.oecd.org/document/40/0,3343,en_2649_33935_39269032_1_1_1_1,00.html
- Gorman, E.H. & Sandefur, R.L. (2011) "Golden Age," Quiescence, and Revival: How the Sociology of Professions became the Study of Knowledge-Based Work, in *Work and Occupations* 38(3) pp. 275-302.
- Guidi, G. C. & Lippi, G. (2006). Laboratory medicine in the 2000s: programmed death or rebirth? In *Clinical Chemical Laboratory Medicine*. 44(8) pp. 913-917.
- Haas, H. (2008) *Migration and development. A theoretical perspective*, International Migration Institute Working Paper No. 9, Oxford: University of Oxford.
- Hagopian, A., Thompson, M. J., Fordyce, M., Johnson, K. *et al.* (2004). The migration of physicians from sub-Saharan South Africa to the United States of America: measures of the African brain drain. *Human Resources for Health*. 2(17) p. 1-10.
- Hale, M. J. (2009). Anatomical pathology in South Africa: Developments, challenges and opportunities, in *The Bulletin of the Royal College of Pathologists*. (January, 147) pp. 241-242.
- Hamilton, K. & Yau, J. (2004). *The Global Tug-of-War for Health Care Workers. Migration Information Source* [Online]. Available from: www.migrationinformation.org. [Accessed: 11/04/11; 2.00PM]
- Health Professions Council of South Africa (HPCSA) (2011) Where Have All our Practitioners Gone? in *The Bulletin* (2011)
- Hennink, M.; Hutter, A. & Bailey, A. (2011) *Qualitative Research Methods*, Los Angeles: SAGE Publications.
- Hesse-Biber, S. & Leavy, P. (2011). *The Practice of Qualitative Research*, 2nd Edition. Los Angeles: Sage Publications.

- HIPAA Space (2011) "Anatomic Pathology" Professionals Availability Ratio by State, Available from:
<http://www.hipaaspace.com/Medical.Statistics/Healthcare.Professionals.Availability/Anatomic%20Pathology/201102> [Accessed: 23/07/11, 2.00PM]
- Holden, W. D. & Levit. E. J. (1978). Migration of Physicians From One Specialty to Another. A longitudinal Study of US Medical School Graduates, in *The Journal of the American Association*. 239(3) pp. 205-209.
- Holtom, B. & O'Neill, B. (2004). Job Embeddedness: A Theoretical Foundation for Developing a Comprehensive Nurse Retention Plan, in *The Journal of Nursing Administration*. 34(5) pp. 1-24.
- International Organisation for Migration (2011) South Africa: Facts and Figures
 Available at: <http://www.iom.int/jahia/Jahia/activities/africa-and-middle-east/southern-africa/south-africa> [Accessed: 25/07/11; 1.00PM]
- International Organization of Migration (IOM) (2010) World Migration Report 2010, The Future of Migration: Building Capacities for Change.
- IOL (2011). Budget must tackle medical shortage. *Business Report*. [Online]. 21 February. Available from: www.iol.co.za. [Accessed: 21/03/11; 1.00PM]
- Independent Online (IOL) (2009) Frustrated Doctors Strike: South Africa
www.iol.co.za/news/south-africa/frustrated-doctors-strike-1.440646
 [Accessed: 23/07/11; 4.00PM]
- Kale, R. (1995). South Africa's Health: New South Africa's doctors: a state of flux, in *British Medical Journal*. 310 (6990) pp. 1307-1310.
- Kershaw, J. (2008). Sustaining the future of lab medicine. *Washington Report*. August. 40 (8) pp.52. Available from: www.mlo-online.com. [Accessed: 29/04/11; 3.00PM]
- Khoo, S., McDonald, P. & Hugo, G. ().2007. A Global Labor Market: Factors Motivating the Sponsorship and Temporary Migration of Skilled Workers to Australia, in *International Migration Review*. 41(2) pp. 489-510.
- Kilpatrick, S. I., Johns, S. S., Millar, P., Le, Q. & Routley, G. (2007). Skills shortages in health: innovative solutions using vocational education and training, in *Rural and Remote Health* [Online] 7 (623) p. 1-13. Available from: <http://www.rmh.org.au>. [Accessed: 13/04/09; 5.00PM]
- Lohr, S. (2010) Sampling Design and Analysis, 2nd ed. Boston: Brooks
- Luthans, F. (2008). Organizational Behaviour, McGraw-Hill: Singapore.
- Lynell, D. (2007). *Facilitation of the recruitment and placement of foreign health care professionals to work in the public sector health care in South Africa*. International Organization for Migration: Republic of South Africa.
- Makoni, M. (2009). South Africa: Doctor brain drain continues. *University World News*. Issue 90. (August).

- Marshall, G. (1998) Human Capital Theory, in *A Dictionary of Sociology* [Online] Available from: www.encyclopedia.com [Accessed: 11/04/11; 1.00PM]
- Martin, P. (2005). Migrants in the global labour market. [Online] (September) p.1-58.
- Martineau, T., Decker, K., & Bundred, R. (2004) "Brain drain" of health professionals: from rhetoric to responsible action, in *Health Policy* 70 (1) pp. 1-10.
- McLane, M. (2010). Do one thing to promote the lab profession. *Washington Report*. February. 42 (2) p. 48. Available from: www.mlo-online.com. [Accessed: 29/04/11; 3.30PM]
- Menash, K., Mackintosh, M. & Henry, L. (2005). *The „Skills Drain“ of Health Professionals from the Developing World: a Framework for Policy Formulation*. Medact: London.
- Michel, R. (2008) New insights on the globalization of healthcare and laboratory testing. Available from: <http://www.darkdaily.com> [Accessed: 21/05/11; 9.00PM]
- Mitchell, T. R., Holtom, B. C., Lee, T. W., Sablinski, C. J., & Erez, M. (2001). Why people stay: Using job embeddedness to predict voluntary turnover, in *Academy of Management Journal*, 44(1) pp. 1102-1121.
- Naicker, S., Plange-Rhule, J., Tutt, R. C. & Eastwood. (2009). Shortage of Healthcare Workers in Developing Countries: Africa, in *Ethnicity and Disease*. 19 (1) pp. 60-64.6.
- Nation Master (2005) *Industrial Sociology*. Available from: <http://www.nationmaster.com/encyclopedia> [Accessed: 21/06/11, 1.15PM]
- Nduru, M. (2006). Medical Brain Drain Puts Southern Africa in a Quandary. *Inter Press Service*. [Online]. 7 April. Available from: <http://ips.org>. [Accessed: 21/03/11; 1.45PM]
- Neuman, W.L. (2009). *Understanding research*, Boston: Pearson Education Inc.
- Papoutsakis, H. (2010) Towards a Global Labor Market in a Knowledge-Dominated Economy, in *Journal of Knowledge Management Practice*, vol 11 no 1 march 2010pp1-8\
- Petti, C. A., Polage, C. R., Quinn, T. C., Ronald, A. R. & Sande, M. A. (2005). *Laboratory Medicine in Africa: A barrier to Effective Health Care*. University of Manitoba: Canada.
- Phillips, J. J. & Connell, A. O. (2006). *Managing Employee Retention: A Strategic Accountability Approach*. Elsevier Butterworth-Heinemann: United States of America.
- Pillay, R. (2007) A conceptual framework for the strategic analysis and management of the brain drain of African health care professionals, in *African Journal of Business Management* 1 (2), pp. 026-03
- Pitblado, J. R. (2007). *Distribution and Internal Migration of Canada's Medical Laboratory Technician Workforce*. Ottawa: Canadian Institute for Health Information.
- Plebani, M. & Lippi, G. (2010). Is laboratory medicine a dying profession? Blessed are those who have not seen and yet believed, in *Clinical Biochemistry*. 43(12) p. 939-941.
- Pogue, T. E (2007) *Mobility of Human Resources and Systems of Innovation: A Literature Review*, HRSC Press: South Africa.
- Profmed. (2009). Too few doctors to implement National Health Insurance proposals. *Profmed*. June. Available from: www.profmed.co.za. [Accessed: 19/4/2011; 09.30AM].

- QSR International (2010) *NVivo9*, Available From:
http://www.qsrinternational.com/products_nvivo.aspx [Accessed: 07/07/11, 6.00PM]
- Ritchie, J. & Lewis, J. (2008) *Qualitative Research Practice: A Guide for Social Science Students and Researchers*, Los Angeles: SAGE Publications.
- Rodrik, D. (2011) *The Globalization Paradox: Why Global Markets, States, and Democracy Can't Coexist*, Oxford University Press.
- Rogerson, C. M. (2007) Medical recruits: The temptation of South African health care professionals, in *Migration Policy Series* (no. 45) pp. 1-39
- Rose, N. (2005), Human Relations Theory and People Management in *European Management Journal* 2005; 34 (8): 43-62.
- Riordan, D. G. & Capitman, J. A. (2006). *Health Professional Shortages in the San Joaquin Valley: The Impact on Federally Qualified Health Clinics*. Fresno: California State University.
- Rudiger, K. (2008) *Towards a Global Labour Market? Globalisation and the Knowledge Economy*, The Work Foundation, London.
- Silverman, D. (2011) *Qualitative Research: Issue of theory, Method and Practice*, Los Angeles: Sage Publications.
- SOPEMI (2011) *International Migration Outlook Annual report: 2011*, OECD: Germany.
- Standing, G. (2009) *Work After Globalization: Building Occupational Citizenship*, Cheltenham & Northampton: Edward Elgar.
- Stewart, J., Clark, D. and Clark, P. F. (2007): "Migration and Recruitment of Healthcare Professional: Causes, Consequences and Policy Responses". *Focus Migration Policy Brief No. 7* [Online]. Available from: <http://www.focus-migration.de>. [Accessed: 09/04/11; 9.00PM]
- Stilwell, B., Diallo, K., Zurn, P., Vujicic, M. & Adams, O *et al.* (2004). Migration of health-care workers from developing countries: strategic approaches to its management, in *Bulletin of the World Health Organization*. (82) 8 pp. 595-600.
- Strietska-Ilina, O. (2008). Skill shortages, in *Cedefop. Modernizing vocational education and training: fourth report on vocational education and training research in Europe: background report*, Volume 1. Luxembourg: Publications office.
- Stuijt, A. (2007). *SA Hires 1,000 Tunisian Doctors To Fight XDR-TB*. Available from: www.rense.com. [Accessed: 19/4/2011; 08.00AM].
- Sughu, L. (2005). Job outlook for clinical laboratory specialists, in *Helium*. 19 (1) p. 11.
- Tanyanyiwa, D. M. (2010) Cost Challenges for Laboratory Medicine Automation in Africa, in *PanAfrican Medical Journal* 22(6) pp.1-11
- Taylor, J. E. & Martin, P. L. (2001) *Human Capital: Migration and Rural Population Change*, in *Handbook of Agricultural Economics*. New York: Elsevier Science
- Terre Blanche, M., Durrheim, K., & Painter, D. (2008). *Research in Practice: Applied Methods for the Social Sciences* (2nd ed.). Cape Town: Juta Publications.

- The South African. (2010). *Medical brain drain is hurting KZN*. 28 October. Available from: <http://london.thesouthafrican.com/news/Medical-brain-drain-is-hurting-KZN> [Accessed: 03/03/11; 9.00AM]
- Transactions (2011) *Admission Ceremony 2010*, in *Journal of the College of Medicine of South Africa* (2011) 55(1) pg16.
- Urbach, J. (2008). Making Sense of the Health Care “Brain Drain”. *IPN*. [Online]. 28 November. Available from: www.policynetwork.net. [Accessed: 19/4/2011; 7.00AM].
- Viliers, P. J. T. (2010) Striking Doctors, in *Journal of South African Family Practice* (2010); 51(3): 201.
- Vujici, M., Zurn, P., Diallo, K., Adams, O. & Dal Poz, M. R. (2004). The role of wages in the migration of health care professionals from developing countries. *Human Resources for Health*. 2(April) pp. 1-14
- Wallis, G. (2002). *The Effect of Skill Shortages on Unemployment and Real Wage Growth: A Simultaneous Equation Approach*. Office for National Statistics: University of Warwick.
- Watson, T. J. (2008) *Sociology, Work, and Industry*. London: Routledge.
- Welman, C; Kruger, F; Mitchell, B. (2009) *Research Methodology*, South Africa: Oxford University Press
- Wildschut, A. (2010). Doctors in the public service: too few for too many. *HSRC Review*. [Online] 2(4). Available from: www.hsrc.ac.za. [Accessed: 19/04/2011; 03.00PM].
- World Health Organization (2006) *World Health Report 2006: Working Together for Health*. Available From: <http://www.who.int/whr/2006/en/index.html> [Accessed: 18/05/11; 4.00PM].
- World Health Organization (2010) *International Migration of Health Workers: Improving International Co-operation to Address the Global Health Workforce Crisis* www.oecd.org/dataoecd/8/1/44783473.pdf [Accessed: 23/07/11; 6.00PM]
- Xiao, J. (1999) *Determinants of salary growth in Shezen, China: An Analysis of formal education, on the job training, and adult education with a three level model*, Chinese University of Hong Kong: Hong Kong.
- Yin, R. K. (2009) *Case Study Research: Design and Methods* (4th edition), Thousand Oaks, California: Sage Publications.

Interview References:

- Aniruth, D. (2011). Interview with author on 30 May 2011. Durban. [Recording in my possession]
- Butler, M. (2011). Interview with author on 4 May 2011. Durban. [Recording in my possession]
- Chetty, L. (2011). Interview with author on 2 May 2011. Durban. [Recording in my possession]
- Dangor, K. (2011). Interview with author on 2 May 2011. Durban. [Recording in my possession]
- Essop, J. (2011). Interview with author on 12 May 2011. Durban. [Recording in my possession]
- Kazi, F. (2011). Interview with author on 12 May 2011. Durban. [Recording in my possession]
- Maharaj, A. (2011). Interview with author on 12 May 2011. Durban. [Recording in my possession]
- Manderee, P. (2011). Interview with author on 24 August 2011. Durban. [Recording in my possession]
- Mkhize, W. (2011). Interview with author on 13 June 2011. Durban. [Recording in my possession]
- Nair, R. (2011). Interview with author on 2 May 2011. Durban. [Recording in my possession]
- Ndlovu, H. (2011). Interview with author on 20 June 2011. Durban. [Recording in my possession]
- Pather, K. (2011). Interview with author on 11 May 2011. Durban. [Recording in my possession]
- Ramlucken, A. (2011). Interview with author on 11 July 2011. Durban. [Recording in my possession]
- Rampersad, I. (2011). Interview with author on 19 March 2011. Durban. [Recording in my possession]
- Subramoney, T. (2011). Interview with author on 21 June 2011. Durban. [Recording in my possession]
- Suraj, S. (2011). Interview with author on 11 July 2011. Durban. [Recording in my possession]
- Van Vuuren, L. (2011). Interview with author on 24 April 2011. Durban. [Recording in my possession]
- Watkins, S. (2011). Interview with author on 15 May 2011. Durban. [Recording in my possession]

APPENDIX

The National Health Laboratory Service: Organisational Profile

Mission Statement

The National Health Laboratory Services role is to provide cost-effective and efficient health laboratory services to all public sector healthcare providers; that support and conduct health research; as well as provide training for health science education.

1. What is the NHLS

The National Health Laboratory Services – NHLS was founded under the 2001 Act of Parliament and is a merger of the former South African Institute for Medical research (SAIMR); National Institute for Virology; the National Centre for Occupational Health as well as the University and Provincial pathology laboratories. It is the largest diagnostic pathology service in South Africa, consisting of laboratories in all of the nine provinces served by 6.700 members of staff, covering 80% of the country's population. The NHLS plays a vital role in many aspects of the country's health care, namely: in the public health in South Africa through epidemiology, surveillance and outbreak response activities; the national antiretroviral roll-out programme through CD4+ viral load studies and HIV treatment monitoring; tuberculosis diagnosis and treatment monitoring; the screening for cervical cancer; and the support of occupational health services.

(i) Division

The NHLS has 4 specialised divisions:

The *National Institute for Communicable Diseases - NICD* is one of the major global role players in infectious disease intelligence and is directed by Prof Barry Schoub (Acting Executive Director). It was created to be a centre for disease surveillance and control in Southern Africa. The NICD replaced the National Institute for Virology and has been complimented by the addition of microbiology, parasitology, and entomology laboratories from the previous South African Institute for Medical Research to produce an all-inclusive public health infectious diseases institution. They gather intelligence and information on communicable diseases to build

competence on the subject. Therefore, provide expertise to all southern regions regarding epidemic and problems.

The *National Institute for Occupational Health - NIOH* supports the development and provision of occupational health services in South Africa run by Dr Barry Kistnasamy (Executive Director). They provide a number of services as will be discussed below.

- The NIOH provides an advisory service that comprises of giving advice on establishing occupational health services at all levels (provincial, district and enterprise levels) thus serving on technical committees, consultations with individuals and enterprises on hazard control as well as the monitoring of workers.
- Information services that include South Africa's national reference library, a toxicology query handling service and the SADC Clearing House for occupational health.
- Support services, eg. specialised laboratories and health hazard evaluations.
- Applied laboratory and epidemiological research.
- Surveillance of occupational disease and indicators of occupational health practice.
- Development of occupational health professionals and specialists.
- The statutory autopsy services in terms of the Occupational Diseases in Mines & Works Act (ODMWAct).

The *National Cancer Registry – NCR* supervised by Mrs Patricia Kellett. It was created in 1986 and falls under the executive management of the NIOH. NCR is a pathology-based cancer registry whose source of data is public and private histopathology, cytology and haematology laboratories nationwide. The National Cancer Registry plays key roles in providing epidemiological information for cancer surveillance, maintaining and developing national awareness of this growing disease in the South African population. They also gather and analyse newly diagnosed cancer cases and report annual cancer incidence rates.

The *Antivenom Unit* within the South African Vaccine Producers, an entirely owned supplementary of the NHLS and is the solitary manufacturer of snake and spider bites and scorpion stings in southern Africa. This division is managed by Mrs Megan Saffer (Managing Director). Additionally, the Antivenom Unit supplies normal horse, sheep and goat blood/serum

for use in the production of diagnostic media and reagents. The unit is supported by an up-to-date animal facility, which supplies animals of a defined status and related services, not only within the NHLS but also to outside institutions. The Quality Control laboratories offer safety testing to the pharmaceutical industry, as well as a diagnostic test for diphtheria antibody.

(ii) Regions

The NHLS has over 300 laboratories that offer a pathology service to all public clinics and hospitals. For the purposes of the NHLS's work, the laboratories are located in areas that are referred to as service regions, explicitly Central, Northern, Coastal and KwaZulu-Natal region. Each region is headed by an Executive Regional Manager. The regions are separated into sets of laboratories and each set is run by a Business Manager.

Central region is run by Executive Regional Manager - Mr Sipho Mahlati; Coastal region consists of Executive Regional Manager - Mr Patrick Lucwaba; KwaZulu-Natal region is run by Executive Regional Manager - Ms Nelly Mkhize; and Northern region is run by Executive Regional Manager - Mr Jone Mofokeng.

2. Priority Programmes of the NHLS

The NHLS has developed priority programs with the motive of making laboratory services more accessible, affordable, and appropriate. These programs largely address two prominent diseases in Africa: HIV and Tuberculosis. Whilst these diseases are of distinct nature, the NHLS ensures that the HIV laboratory services are interlinked and integrated with those laboratory services for tuberculosis, to ensure that both these diseases are given equal priority. The main objectives/aims of the priority programmes are: to provide affordable and sustainable laboratory services to those adults and children affected by HIV/AIDS; to undergo constant research to ensure that the services of NHLS are appropriate and efficient; to increase the activities of the NHLS regarding combating prime diseases such as HIV/AIDS; and to train health personnel to ensure that future services are adequate and up to standard.

Priority programmes of the NHLS all fall under a primary programme, *The National Priority Areas Programme (NPP)*. This initiative comprises of an interlinked unit mainly focuses on

including HIV and Tuberculosis as key activities within the NHLS, by managing and co-ordinating the diagnosis and monitoring services of these diseases.

A key initiative that falls under the NPP is the *Point of Care Research Group Programme*, which aims to increase the access of patient testing and treating of HIV/ AIDS around the country, specifically in remote areas and regions. To achieve this objective, the NHLS has developed a research team to investigate the feasibility and appropriateness of developing Point-of-care facilities and laboratories to allow for the efficient and convenient monitoring, and treatment of HIV/AIDS and TB. The NHLS has developed a team that is currently embarking on a pilot project to conclude on the feasibility and relevance of Point-of-care facilities.

A second related programme entails prioritizing the Johannesburg CD4 laboratory of the NHLS. This laboratory is the busiest and most efficient laboratory of the NHLS. Additionally, the NHLS has transformed this laboratory into embarking on research functions such as clinical trials etc. A research team of the CD4 laboratory is responsible for producing innovative developments concerning operations of NHLS laboratories that can be applied and utilized across all laboratories of the NHLS. This includes support services to all NHLS laboratories such as: instrument implementation; site inspections; audits; training initiatives; and workshop based teaching programmes.

The third priority programme is the development of the Paediatric HIV Diagnostic Unit which is allocated the responsibility of diagnosing the early infection of infants. This objective is achieved through another priority programme of the NHLS, which is *The Prevention of Mother to Child Transmission (PMTCT) Programme*, which simply aims to identify HIV- infected infants. This is achieved through: constant research to deliver accurate results; training health workers to sample infant blood and interpret results; service delivery efforts concerning logistic ramifications; monitoring test performed; advocacy for infant diagnosis; and the provision technical assistance for diagnostic guidelines.

The final priority programme of the NHLS involves *HIV Genotyping*. The NHLS has developed a genotyping unit whose primary concern is to investigate what HIV viral and host factors

influence the treatment outcome of the disease. There are a number of projects created by the genotyping unit to achieve this. The most prominent of these are:

- **SPARTAC Project:** This project evaluates the utilization of antiretroviral as therapy for recent HIV infections
- **Adult AIDS Trial Group:** This project utilizes adults infected with HIV/AIDS in drug resistant testing trials for patients that are being treated with various drugs.
- **PASER:** A project funded by the Government of Netherlands, which is, briefly put, involved in bringing resistance testing techniques from across the world into Africa.
- **SATuRN Project:** A developed network in South Africa that focuses on performing surveillance tests on HIV-1 drug resistance in South Africa's public health sector.
- **ART-A:** A European funded project that embarks on the research and development of creating a more affordable and accessible method of testing to monitor HIV-1 drug resistance.

3. Diagnostic Services of the NHLS

(i) Diagnostic services

The National Health Laboratory Service (NHLS) is the sole provider of diagnostic pathology services to the public sector in South Africa. As mentioned above, the NHLS provides these services across the country at all tiers of health service delivery, covering over 80% of the population. NHLS diagnostic laboratories are found in provincial and district hospitals in large metropolitan centres and remote rural areas as well as in the teaching hospitals of university medical schools as explored above.

The focus of the NHLS is to guarantee access to laboratory diagnostic services to all South Africans as it is a national network of pathology laboratories throughout South Africa that make use of similar management systems and transport systems. This allows for uniformity in the transportation of specimens, referrals of tests to reference laboratories and delivery of results.

An all-inclusive diagnostic service is accessible at all tiers of health services delivery. These laboratory services include consultation on the correct specimen to be collected, the management of the specimen (including its storage, transport, safety and ultimate disposal), the performing of

tests on the specimen, the provision of a result and, finally, the interpretation of that result. All laboratories provide laboratory diagnostic services to the national Department of Health, provincial and district hospitals, primary healthcare clinics and other state institutions (prisons, etc).

The NHLS offers a referral diagnostic service for private sector healthcare providers for seldom requested tests and expensive tests. Additionally diagnostic services for environmental services such as water and food are also provided.

NHLS diagnostic laboratories are found in the teaching hospitals of university medical schools, i.e.

- Charlotte Maxeke (Johannesburg) Hospital and Chris Hani Baragwanath Hospital (University of the Witwatersrand)
- Steve Biko Academic Hospital (University of Pretoria)
- Dr George Mukhari Hospital (University of Limpopo, MEDUNSA Campus)
- Universitas Hospital (University of the Free State)
- Tygerberg Hospital (University of Stellenbosch)
- Groote Schuur Hospital and Red Cross Children's Memorial Hospital (University of Cape Town)
- Nelson Mandela Tertiary Hospital (Walter Sisulu University)
- Inkosi Albert Luthuli Central Hospital (University of KwaZulu-Natal)
- In provincial and district hospitals in large metropolitan centres and remote rural areas.

As discussed above the four regions that these laboratories are divided into Central, Coastal, KwaZulu-Natal and Northern regions. Each region is headed by its own Executive Regional Manager. Each region is further divided into sets of laboratories and that is run by its own Business Manager.

(ii) Diagnostic Media Products

The Diagnostic Media Products (DMP) service is based at the NHLS' Sandringham headquarters, manufactures and supplies a wide range of high quality diagnostic reagents, ready to use kits and

microbiological culture media. The DMP comprises of three departments: a production department boasting state-of-the-art equipment; a quality control department that consist of highly qualified medical technologists; and a sales department.

DMP's products vary from routine microbiological media to more specialised media for specialised laboratories such as food microbiological media and environmental testing media such as legionella media. They produce a wide range of stains used for microbiology as well as histology and haematology. DMP provides made up kits and reagents for selected haematology and chemistry sets.

There are a few points that DMP take into consideration to guarantee that the high quality of their products is maintained:

- always store media/reagents according to the storage conditions prescribed on the label;
- store all products away from direct sunlight and do not expose to excessive temperatures such as too hot or freezing conditions;
- always utilize products with expiry date stated on the product label;
- use the correct media/products for the accurate tests according to the standard operating procedures of the laboratory; and
- follow correct staining procedures when staining slides as this will influence the value of the stain.

(iii) Paternity Testing

A Paternity/parentage test covers a laboratory determination of the parentage of a child. There are many types of parties that may require this test, such as:

- A person who wishes to prove/disprove that they are the biological parent of a child.
- A mother who wishes to prove/disprove that a certain man is the biological father of her child or children.
- A man that is already paying maintenance for a child but has doubts about his alleged paternal status.
- The parents of babies that may have been mixed-up soon after birth.

- The relatives of a deceased man when there is a claim against the estate by a woman claiming that the deceased man is the father of her child.
- Individuals wishing to immigrate to certain countries where one or both of their parents are living.
- Individuals that were adopted and who are trying to trace their biological parents.

This type of test Paternity/parentage test is closely linked to Kinship testing, which is a DNA test that will analyze the relationship between two or more individuals to review an alleged relationship (e.g. full or half siblings, grandparents and aunts or uncles).

4. Research

The National Health Laboratory Service (NHLS) conducts research that reflects a vast range of activities in disciplines such as pathology and surveillance. Priority diseases that exist in South Africa, such as HIV and AIDS, tuberculosis, malaria, pneumococcal infections, occupational health, as well as the screening for cervical cancer and malnutrition are part of the research agenda.

The National Health Laboratory Service (NHLS) employs internationally established scientists in academic pathology departments of university medical schools in South Africa with which it associates itself with. Staff members within these academic departments hold joint NHLS and university appointments. These pathology schools include universities of Cape Town, Free State, KwaZulu-Natal, Limpopo (MEDUNSA Campus), Pretoria, Stellenbosch, Witwatersrand, Walter Sisulu University for Technology and Science and the Oral Pathology Department of the University of the Western Cape. Academic staff contribute significantly to the national and international medical literature as well as medical welfare of our citizens as they engage in research pertaining specifically on diseases apparent in South Africa.

Aside from the NHLS financing itself to a large degree, support grants of research are made by the South African Medical Research Council, the Cancer Association of South Africa, Poliomyelitis Research Foundation, National Research Foundation, pharmaceutical companies,

private donors and numerous international institutions. Diagnostic services are provided by the academic departments to the hospitals in which students are taught.

The National Health Laboratory Service (NHLS) Research Trust funds pathology research that is carried out by registered students and staff of the pathology departments or schools of pathology in South African medical schools. A board of trustees govern the NHLS Research trust, which has been empowered by the founding Trust to create a peer review mechanism or committee for purposes of management and evaluation of applications for funds from the Trust. The aims of the NHLS research grant are to reinforce and enhance the research capacity in medical pathology through provision of research grant support to young and new staff members who have just started their research careers, by facilitating them to be independent generators of knowledge in the medical pathology field. Secondly, to allow for experienced/established academic medical pathology staff/researchers to conduct high quality research that will significantly affect knowledge and practise in medical pathology.

The NHLS Research Trust grants have two grant types which are pathology research development grants as well as pathology research awards. The former refers to a grant that assists inexperienced researchers and staff in involving themselves in research in an attempt to enhance their research and knowledge levels. The latter caters for established and experienced researchers in medical pathology which enables them to conduct competitive and meaningful research in order to improve knowledge and practise.

5. Training at the NHLS

The NHLS, associated with Universities of Technology, developed a teaching programme aimed at training and developing medical technologists and technicians. This includes both, undergraduate and post-graduate health professionals, and is administered through public health and pathology departments based at public hospitals, medical schools and dental schools. Included access to training programs are: pathologists of all spectrums (i.e. anatomical; chemical; etc.); pathology medical scientists, technicians, and technologists; and occupational health practitioners and staff. The NHLS training programme focuses on a range of disciplines

such as: anatomical pathology; immunology; virology; chemical pathology; microbiology; haematology; and human genetics.

The NHLS ensures that all their staff and trainees are given the optimum and most contemporary forms of training and development through the establishment of a national training division. This division functions as a branch of the Human Resource division that ensures that staff and trainees undergo constant skilled development programmes to ensure that their skills are contemporary. Training is available at all four regions on the NHLS (KwaZulu-Natal; Northern; Coastal; and Central Regions).

6. Quality Assurance

The National Health Laboratory Service engages in benchmarking against international standards by means of accreditation of laboratories, conducting external quality assessment and internal quality control through the evaluation of proficiency testing performance as well as the analysis of assayed control materials on all patient samples thereby ensuring high a standard of services. The Quality Assurance Division aims at setting and implementing policy in terms of research, quality assurance as well as accreditation of laboratories. The Quality Assurance Division is an active member of the Clinical Laboratory Standards Institute (CLSI) which offers practical guidance that is an educational tool for the NHLS.

Drawing on accreditation, the NHLS laboratories are accredited by the South African National Accreditation System (SANAS). The South African National Accreditation System is an independent legislated body responsible for compliance with international standards. This entails the assessment and implementation of quality standards in addition to the competence of a laboratory's ability to perform designated tests.

Strikingly, sixty percent of NHLS academic laboratories and twenty one percent of regional laboratories are accredited to international standards.

All National Health Laboratory Service (NHLS) laboratories engage in NHLS proficiency testing, which refers to external quality assessment schemes that comprises of all disciplines of

pathology testing. Proficiency testing schemes are performed on a monthly, every second month or quarterly basis, depending on the scheme. Results are monitored on an on-going basis to guarantee timely interventions when problems are rectified. The percentage compliance of NHLS laboratories positively stands at a soaring ninety five percent within the last two years which are above international norms. There is also participation of academic laboratories in international proficiency testing schemes that include those coordinated by the Royal College of Pathologists of Australia, United Kingdom National External Quality Assessment Scheme and College of American Pathologists.

Importantly, The NHLS chemistry, flow cytometry and haematology proficiency testing schemes are accredited to ISO Guide 43 and ILAC Guide 13. A current project being undertaken by the NHLS is the accreditation of the microbiology proficiency testing schemes.

Internal quality control is imperative to the NHLS as all NHLS laboratories run samples of known value/s at pre-determined intervals in order to determine the effectiveness of their test systems. Notably, daily quality control is charted and analysed in keeping with criteria that is internationally acclaimed.

The monitoring of internal quality control data occurs continuously by technical staff in all laboratories in real time. In doing so, should there be a failure of internal quality control, corrective action can then be executed before generation of patient results.

A sub-division of the Quality Assurance Division is health and safety. This has a responsibility to ensure that the National Health Laboratory Service is a safe and healthy environment for its members of staff.

7. Publications

The National Health Laboratory Service (NHLS) along with its divisions, that is, the National Institute for Communicable Diseases (NICD) and the National Institute for Occupational Health (NIOH) are responsible for publications compiled by their expert-staff relating to their fields of work and research.

A stronger alignment of the NHLS strategy with the Department of Health was created during the period of the 2009-2010 financial year. The organisation aimed at increasing its focus towards the customer; strengthening stakeholder relations with its partners and clients; developing a more conducive working environment for employees; positioning itself as a viable employer for young health professionals; encouragement of suitable research, and lastly to investigate ways of decreasing service costs to customers.

The 2009-2010 annual report emphasises how the NHLS dealt with these aims as well as the outcomes of them. The NHLS has been successful in its contribution to the public health system by focusing on cost effective diagnostic tools, laboratory service delivery, as well as revolutionary research.

In offering current information and sources on communicable diseases in South Africa, the NICD Communiqué is published by the National Institute for Communicable Diseases (NICD) every month. Additionally, a quarterly publication called the NICD Communicable Diseases Surveillance Bulletin of the National Institute for Communicable Diseases is also available.